Job Futures

AN OCCUPATIONAL OUTLOOK TO 1992

1986-1987 EDITION

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E R R A T A

Please note the following changes to Part Two of your Job Futures book:

Occupation 2351	Employment trends ('000) 1985-92 change:	1.3
Occupation 2731	Total Requirements ('000) 1985-92 :	30.3
Occupation 2733	Total Requirements ('000) 1985-92 :	8.5
Occupation 2739	Total Requirements ('000) 1985-92 :	5.5
Occupation 2791	Total Requirements ('000) 1985-92 :	0.0

Employment and Immigration Canada
Emploi et Immigration Canada

JOB PROSPECTS

AN OCCUPATIONAL OUTLOOK TO 1992

1986-1987 EDITION

Canadian Occupational
Projection System
(COPS)

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Minister of Employment
and Immigration

CANADA

Ministre de l'Emploi
et de l'Immigration

Message from the Minister

What career should you choose? Each generation of young people has had to wrestle with this crucial decision. How do you translate your talents into a rewarding and promising career? How do you find the right job that challenges you and meshes with your aspirations?

The journey from the educational system to the job market has often been a perplexing one. It's never been easy. It still isn't and probably never will be.

Career counsellors have had special problems of their own. Relevant labour market research has not been abundant, often making it difficult for them to advise young people and to help with critical decisions.

This publication attempts to facilitate the counsellor's job by making available relevant labour market information that will help individuals make worthwhile career choices.

Employment and Immigration Canada has been analyzing the recent job market and trends as part of the development of the Canadian Occupational Projection System (COPS). Valuable information from COPS has been incorporated into this publication—the first of what we hope will be many occupational outlooks.

Job Futures does not have all the answers, nor is it a panacea for all our employment problems. It is, however, a valuable source of vocational guidance information.

Whether you're a counsellor or student, or someone interested in changing careers, Job Futures will give you an understanding of the choices in the job market today and where these jobs are probably going to be by 1992.

Good luck.

Flora MacDonald

Ottawa, Canada K1A 0J9

How to use this handbook

To locate a particular field of study	See 'Inside Part One'.
To locate a particular occupation	See 'Inside Part Two'. The occupations are grouped according to the Canadian Classification and Dictionary of Occupations (CCDO) codes.
What do phrases like 'faster than average employment growth rate' mean?	For help in interpreting the qualitative analysis in Job Futures refer to the Introduction on page 2
Are some occupations more sensitive to changes in technology or work organization?	This information is included where applicable.
Need more career information?	See page 3 of the Introduction for additional sources.

Preface

It should be noted that the occupational information included in this Handbook involves projections based on information collected and analyzed through the Canadian Occupational Projection System (COPS). Projections should be interpreted with caution as no one can say, with certainty, what the future has in store. These projections are not predictions of what will necessarily happen. Rather, they represent one possible path for occupational requirements.

Many trade associations, professional societies, unions, and industrial organizations are able to provide valuable career information for counsellors and students on career choices.

For your convenience, some of these organizations are listed at the end of each occupational statement.

The listing of an organization, however, does not constitute in any way an endorsement or recommendation — either of the organization or of the information it may supply.

Job Futures is the first edition of what is planned to be a regularly published Handbook on careers in Canada. It encompasses the extent of COPS occupational research to date. Future editions will expand on this useful and interesting information about occupations and career choices in Canada.

Introduction

Choosing a career or changing your line of work is a challenge. Especially in these uncertain economic times. There are questions that need answers. What are your prospects? What's the job market like? What jobs are sensitive to technological changes? Where do the best opportunities lie?

Job Futures helps you to answer these questions by providing valuable information on future occupational labour markets.

In addition to quantitative information, Job Futures features qualitative information from various elements of the labour market. Representatives of industry, labour, unions, provincial governments and education offered their special perspectives. The result is a comprehensive view of present and future labour market conditions. This information fleshes out the numbers and percentages.

What's in Job Futures?

Job Futures has two parts.

Part One — Graduates, by Major Field of Study, to Occupation — the movement of graduates from field of study to occupation establishes the important link between the educational system and the occupation the individual was in two years after graduating.

Part Two — Occupation Outlooks — provides you with detailed outlook information that will help you to make intelligent decisions about your future.

How Part One Works

Organized by university and community college study fields and the levels of degree/diploma, this section lists the major occupations in which full-time graduates (of 23 university and 18 community college fields of study) were employed two years after graduating.

These occupations define the dimensions of the job market for university and community college graduates, based on the 1984 National Graduate Survey of 1982 post-secondary graduates.

Please note that a major field of study can incorporate many specific study areas. These are listed in the Table of Contents for Part One.

The code numbers (such as 1132, 1171 etc.) and occupation titles come from Employment and Immigration's Canadian Classification and Dictionary of Occupations (CCDO). The first two digits of the number (i.e. 11) indicate the general field; the second two numbers (i.e. 32) indicate the specific occupation. Thus, 1132 would be managerial positions specifically in the social sciences.

When you've found out which occupations correspond to your field of study, you simply look for the appropriate code numbers in Part Two of Job Futures. There you will find an overview of the occupation and an indication of future prospects in this type of job.

It's important to note that, in Part One, the sample occupations reflect a range of possible outcomes resulting from educational choices. They do not represent all the options. Not all the occupations listed for a field represent ideal or even appropriate short-term career goals for recent graduates. Rather, they reflect the realities of the job market over the 1982-84 period. These occupations should provide guidance, but not limit a graduate's creative job search.

How Part Two Works

Called Occupation Outlooks, Part Two is organized by occupation (sequentially by CCDO code) and covers 174 areas.

You'll be able to review the labour market situation in those occupations that most interest you and that best mesh with your aspirations.

It's important to note that this informa-

tion doesn't reflect longer-term career paths. Senior positions require substantial on-the-job experience and additional training. Nevertheless, many of the occupations listed are part of the potential senior management career path.

Title and Tables

The title includes a numerical code and name of the occupational group that comes from Employment and Immigration's Canadian Classification and Dictionary of Occupations (CCDO), fifth edition, plus some sample occupations that are commonly found in this group. If you're looking for more detailed information of job categories, refer to the CCDO.

The table, designed for quick and easy reference, gives you an overview of the labour market situation of the particular occupational group. It also gives you the sex and age composition, and, for 63 occupations, the average salary two years after graduating (1984 dollars).

Average Salary two years after graduation (1984 $) — Job Futures includes the average salary, in 1984 dollars, of those employed full time two years after graduating. This information comes from the 1984 National Graduate Survey of 1982 Graduates and includes 63 occupational categories.

Employment Trends — This states how many people, in thousands, were in this occupational category in 1985, the projected number for 1992, and the difference, plus or minus, between 1985 and 1992. This doesn't include those who withdraw from the labour force because of death or retirement, or those who have moved on to other occupations.

Estimated Attrition — This means the number of projected withdrawals from the labour force because of death and retirement. It doesn't include movement from one occupational group into another.

Total Requirements — This is what you get when you add the 'change' from the Employment Trends section to the Estimated Attrition section. Roughly, it represents the personnel required to staff projected additional jobs plus the projected number of jobs vacated through attrition. This doesn't include estimates of job openings caused by persons moving from one occupation into another.

Sex Composition — This information comes from the 1981 Census and gives the proportion of males and females in the occupation. Next to this is the average sex composition of all occupations — 40 per cent for women and 60 per cent for men.

Age Composition — Also from the 1981 Census, this gives the proportions of young and old in the occupational category, compared to the proportion of those under 25 years (12 per cent) and those over 54 years (25 per cent) in the entire labour force.

Occupation Descriptions

The descriptions provide incisive qualitative information gathered from representatives of industry, labour, education and government agencies. It includes the following information:

- The expected rate of employment growth, relative to the average for all occupations (approximately two per cent per year in Canada). This is based on the average annual rate of employment growth projection for the 1985 to 1992 period.

- The industrial sector(s) where the occupation is concentrated. The sectors that accounted for at least 10 per cent of the occupation's labour force in 1981 are listed in descending order of importance. Where

occupations are spread among numerous detailed sectors, broader industry sector descriptions are used.

- How sensitive the occupation is to overall economic activity. Highly sensitive occupations can be the first to rebound in a recovery and the quickest to decline in a recession. Employment prospects in highly sensitive occupations may be erratic because of volatility in the economy. This information is based on estimates of employment differences derived by comparing employment estimates associated with the high- and low-growth projections of the Canadian economy to 1992. These were developed for the Canadian Occupational Projection System (COPS).

The following information may or may not be included, depending on the occupation.

- A comment on sensitivity to changes in technology and work organization. This information is based on the analysis and comparison of data from the 1971 and 1981 Census of Canada.

- A description of technological, demographic or other factors that may affect the group. For example, the 'Employment Trends' figures are projections based on the unchanging occupational composition of industries. In reality, many occupations increase or decrease their representation within an industry over time for various reasons. Commentary on some of these reasons and the extent of their impact on the occupation should be used to qualify the estimates based on rigid occupational compositions. Pertinent commentary is supplied where possible.

- The sex breakdown of the labour force (1981 Census) within the occupation, indicating which sex is predominant.

- The relevant age distribution (1981 Census). The proportion of persons older than 54 is compared to the national proportion of 12 per cent. A high proportion of these workers could signal a large number of expected retirements. It could also mean that the occupation represents the upper levels of a career path (senior management). A high proportion of youth could imply a high job turnover, or that the occupation is an entry-level one.
- Geographical information (1981 Census). The provincial concentration is identified in cases where a single province accounted for at least 50 per cent of the national occupational labour force in 1981.
- Recent labour market conditions where applicable. The National Job Bank (NJB) and Unemployment Insurance Commission (UIC) were used as sources of this information. This applies to 1984 only.

What Job Futures Can't Do

Job Futures is a companion to other publications and shouldn't be treated as stand-alone career information. It provides a reasonable view of expected labour market conditions in various occupational areas.

Job Futures doesn't provide information on training qualifications, full job descriptions or working conditions. To find out more about these, consult your nearest Canada Employment Centre, or refer to the CCDO; Occupational Qualifications Requirements, Information Canada 1973; and the Directory of Associations in Canada, fifth edition (Brian Land ed.)

An Employment and Immigration Canada publication, 'Careers Canada', provides extensive descriptions of other aspects of occupations (i.e. qualifications and working conditions etc.).

As well, Employment and Immigration Canada offers 'CHOICES', an interactive

computer system that allows students to ask pertinent questions about career choices. For information on 'Careers Canada' and 'CHOICES', contact a Canada Employment Centre or the Employment Support Services Branch, Employment and Immigration Canada, National Headquarters, Ottawa-Hull.

Also, for more information on earnings, a good source is Labour Canada's Wage Rates, Salaries and Hours of Labour, Oct. 1984; Supply and Services Canada, 1985.

The reported figures and narratives apply to the occupational title that normally represents an entire occupational group. Therefore, a statement that applies to a group may not apply to each one of the individual occupations listed. For example, if a statement refers to the art restoring field, it does not necessarily apply to the paintings restorer, even though they're both part of Technicians in Library, Museum and Archival Sciences.

Not all the occupations in the Canadian Classification and Dictionary of Occupations (CCDO) are listed because not all have easily recognized supply channels. For some occupations, training is industry specific with low-skilled entry requirements and promotion from within. For others, the skill requirements are such that high school graduates are the main source of new supply.

Estimates of labour force withdrawals refer only to voluntary departures from the labour force. Inter-occupational transfers are absent owing to lack of data.

Job Futures is a product of the Canadian Occupational Projection System (COPS), a labour supply and demand information and data bank designed by Employment and Immigration Canada.

Community College Fields of Study

Page

Commercial Design 11

Commercial Arts
Packaging Design

Graphic Arts 12

Graphic Arts

Other Fine, Applied and Performing Arts 13

Animation
Photographic Arts
Photography
Applied and Fine Arts
Art Conservation
Ceramics
Fine Arts
Jewel Arts
Jewellery Repair
Music
Dance, Performing Arts
Material Arts
Performing Arts Administration
Crafts and Design
Creative Arts
Fashion Arts
Furniture and Woodworking
Interior Design (Furniture)
Design Arts (Commercial)
Furniture Renovation
Garment Making
Library Arts Technologies
Library (or Documentation) Technologies
Museum Technologies

Page

Radio, Theatre and T.V. Arts
Theatre Arts
Theatre Production
Applied Arts
Watchmaking
Piano Technologies

Business, Management and Commerce 14

Administration, General
Aviation Management
Business, General
Business Administration
Industrial Management
Industrial Relations
Institute Management
Legal Office Administration
Management Technologies
Manufacturing Management
Municipal Administration
Operations Management
Personnel Administration
Public Administration
Residential Construction Management
Transport Administration
Co-op Administration
Apparel Management
Micro Computer Management

Secretarial Arts and Sciences 16

Court Reporting
Health Records Technologies
Law Clerk
Medical Archives
Medical Records

Page

Secretary, Administration
Secretary, General
Secretary, Legal
Secretary, Medical
Word Processing

Data Processing and Computer Science 17

Computer Programming
Computer Science and Systems
Computer Technologies
Data Processing

Primary Industries 18

Agricultural Business, Farm Machinery
Agricultural Engineering
Agricultural Laboratory Technologies
Agriculture, Crops and Livestock
Animal Care
Animal Science
Crops, Field and Horticultural
Equine Care, Horse Husbandry
Equine Studies
Irrigation
Farm Ranch Livestock Production
Dairy Technologies
Plant Science Technologies
Agriculture Chemical, Soils and Fertilizer
Apiarist/Beekeeper
Floriculture
Forest Resources
Forestry
Forestry Management
Forestry (Wood) Products Technologies
Horticulture and Landscaping
Landscape Technologies
Horticulture, Fruit
Horticulture, Ornamental
Turf Grass Management
Fishing and Fisheries Technologies

Page

Nursing 19

Dental Nursing
Nursing
Nursing, Critical Care
RNA Operating Room Technique
Nursing, Extended Care
Nursing, Neonatal
Occupational Health Nursing
Nursing, Operating Room
Nursing, Refresher
Nursing, Supplementary
Nursing, Psychiatric
Nursing, Mental Health
Public Health

Other Medical and Dental Services 20

Ambulance and Emergency Care
Chiropractic
Clinical Laboratory and X-Ray
Cytology
Dental Hygiene or Denture Therapy
Emergency Para-Medical Care
Nuclear Medicine
Physiotherapy, Therapeutic Recreation
Radiodiagnostics Technologies
Radiology
Radiotherapy
Respiratory Technology
Clinical Chemistry
Cardiovascular Perfusion
Ultrasonography
Medical Radiography
Hearing Aid Consultant
Medical Laboratory Technician
Medical Laboratory Assistant
Virology
Microbiology
Immunology
Histotechnology
Biomedical Equipment

Page

Dental Laboratory Technology
Dental Mechanic Technology
Dental Technology
Optical Prosthesis
Orthopaedy Prosthesis
Optical Dispensing Optician Technology
Biological (Laboratory) Technology
Dietetics, Dietary Technology
Medical Electrophysiology
Mental Retardation Development
Environmental Health

Electronic and Electrical Technologies 21

Avionics
Avionics Maintenance
Broadcasting Electronics
Control Systems Technology
Electrical Controls Technology
Electrical Electronics
Electrical Technology
Electric Power Technology
Electro-Mechanic Technology
Electronics Technology
Electronics - T.V. and Audio
Marine Electronics
Recording Engineering
Telecommunications Technology
Industrial Electronics

Mechanical Technologies 22

Agricultural Equipment Mechanics
Aircraft Maintenance Technology
Auto Technology
Diesel, Motor Power
Fluid Power Technology
Heavy Equipment Technology
Helicopter Engineering
Industrial (Heavy Equipment Mechanics)
Marine Engineering
Mechanical Engineering
Mechanical Technology
Motorized Equipment
Power Engineering
Recreational Vehicles
Energy Systems
Materials Engineering Technology

Chemical Technologies 23

Analytical Chemistry
Biochemical Technology
Chemical and Metallurgical Technology
Chemical Technology
Chemistry, Dyes
Industrial Chemical Technology
Industrial Microbiology
Laboratory Science Technology
Pharmacy, Pharmaceutical Technology
Photographic Laboratory
Plastics
Textile Technology

Architecture 24

Architecture
Architectural Draughting

Other Engineering and Related Technologies 25

Geology Technologies
Metallurgical Processing
Metallurgical Technologies
Minerallurgy
Mineral Technologies
Mining Technologies
Paper Making Technologies
Petroleum, Resources Drill Technologies

Page

Hydrocarbon Engineering Technologies
Metallurgy, Quality Control
Earth Resources
Environmental
Environmental Planning
Fish and Wildlife
Land Classification and Resources
Natural Science Technologies
Renewable Resources Technologies
Water Purification
Water Resources Technologies
Water Science Technologies
Wildlife and Fisheries Technologies
Wildlife Management
Wildlife Recreation
Zoology Technologies
Air Purification
Environmental Control Technologies
Conservation
Natural Science Laboratory Technologies
Forest Recreation
Aerial Survey
Cartographic Technologies
Cartography
Civil Technologies
Civil Technologies - Explosives
Drafting, Piping Drafting
Electro-Mechanical Drafting
Engineering Drafting or Design
Engineering Science Technologies
Engineering Technologies
Geodesic Technologies
Instrumentation
Instrumentation and Control
Mechanical Design
Mechanical Drafting Technologies
Photogrammetry
Property Mapping
Surveying
Remote Survey
Acoustics Technician
Solar Engineering Technology

Page

Civil and Structural Technologies
Construction or Building Technologies
Construction Mechanics
Historical Structures Restoration
Naval Architecture Technologies
Heavy Equipment Construction Technologies
Building and Assessment
Aeronautical Engineering
Industrial Product Design
Industrial Engineering Technologies
Industrial Instrumentation Technologies
Industrial Technologies
Manufacturing Technologies
Materials Science or Management
Mechanical Production
Process Operations
Production and Control
Quality Control
Tool and Die Technologies
Aircraft Manufacturing
Industrial Machinist, Intern
Food Processing Technologies
Industrial Food Technologies
Marine Products Processing
Combustion Technology
Industrial Safety
Physics Technology
Refrigeration and Air Conditioning
Welding Technology

Transportation **26**

Air Transport Ground Support
Aviation
Aviation and Flight Technologies
Helicopter Flying
Navigation, Marine
Nautical Science
Transport Planning
Motor Carrier Administration

	Page
Mass Communication	27
Advertising	
Communications	
Communication Arts	
Media Arts Technology	
Broadcasting	
Journalism	
Public Relations	
Community Service, Social Welfare, Household Science	28
Correctional Services	
Correctional Technologies	
Correctional Worker	
Criminal Justice	
Fire Protection Technologies	
Judicial Technologies, Law and Probation	
Law and Security	
Para-Legal Technologies	
Police Technologies	
Prevention Technologies	
Behavioural Science	
Child Care Worker	
Family Day Care Worker	
Human Relations	
Human Services	
Human Studies	
Workshop Rehabilitation Services	
Social Assistance	
Social Psychological Research	
Social Services Technologies	
Social Services Worker	
Canadian Nanny	
Applied Social Sciences	
Community Recreational Leaders	
Equitation	
Gymnastics Coach	
Historical Natural Sites Interpretation	
Leisure Services	
Parks and Recreation Operation	
Physical Education	
Recreational Leader	
Recreation Administration	
Technologies	
Tourism	
Travel and Tourism	
Travel Counsellor	
Arena Management	
Hunting and Fishing	
Yachting Studies	
Counsellor - Addiction	
Counsellor - Mental Retardation	
Counsellor - Special Care	
General Arts and Science, Education, Law	29
Audio-Visual Technology	
Book Edit and Publishing	
Cinematography	
Film Production	
Printing and Bookbinding	
Recorded Music Production	
Visual Arts	
Early Childhood Education	
Teacher Aide	
Teacher Education	
Community Planning	
Community Services	
Consumer and Family Studies	
Urban Design	
Youth Development	
Funeral Services	
Public Speaking	
Underwater Skills	
Applied Research	

Field of Study: *11*	***Commercial Design***	*Level:* ***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Career Program		
33	*Artistic, literary, performing arts and related occupations and occupations in sport and recreation*	44.4
3314	*Advertising and illustrating artists*	33.3
11	*Managerial, administrative and related occupations*	11.1
41	*Clerical and related occupations*	11.1
51	*Sales occupations*	11.1
9999	*Other occupations*	22.2

Field of Study: 12	***Graphic Arts***	*Level:*	***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Career Program		
33	*Artistic, literary, performing arts and related occupations and occupations in sport and recreation*	25.0
3314	*Advertising and illustrating artists*	18.8
95	*Other crafts and equipment operating occupations*	12.5
11	*Managerial, administrative and related occupations*	6.3
21	*Occupations in natural sciences, engineering and mathematics*	6.3
41	*Clerical and related occupations*	6.3
51	*Sales occupations*	6.3
61	*Service occupations*	6.3
9998	*Not employed*	12.5
9999	*Other occupations*	18.8

Field of Study: 13	***Other Fine, Applied and Performing Arts***	*Level:*	***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Career Program		
33	*Artistic, literary, performing arts and related occupations and occupations in sport and recreation*	20.0
3313	*Product and interior designers*	10.0
41	*Clerical and related occupations*	16.7
51	*Sales occupations*	10.0
5135	*Sales workers, commodities, N.E.C.*	6.7
11	*Managerial, administrative and related occupations*	6.7
23	*Occupations in social sciences and related fields*	6.7
85	*Product fabricating, assembling and repairing occupations*	6.7
21	*Occupations in natural sciences, engineering and mathematics*	3.3
27	*Teaching and related occupations*	3.3
61	*Service occupations*	3.3
9998	*Not employed*	23.3
9999	*Other occupations*	0.0

Field of Study: 21 ***Business, Management and Commerce*** *Level:* ***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Career Program			
41	*Clerical and related occupations*		28.6
4131	*Bookkeepers and accounting clerks*	10.0	
4111	*Secretaries and stenographers*	3.6	
4133	*Tellers and cashiers*	2.9	
4143	*Electronic data-processing equipment operators*	1.4	
4155	*Stock clerks and related occupations*	1.4	
4197	*General office clerks*	1.4	
11	*Managerial, administrative and related occupations*		21.4
1137	*Sales and advertising management occupations*	5.7	
1171	*Accountants, auditors and other financial officers*	5.7	
1135	*Financial management occupations*	1.4	
51	*Sales occupations*		13.6
5135	*Sales workers, commodities, N.E.C.*	5.7	
5133	*Commercial travellers*	2.9	
5171	*Insurance sales occupations and agents*	1.4	
61	*Service occupations*		8.6
6125	*Food and beverage serving occupations*	2.1	
21	*Occupations in natural sciences, engineering and mathematics*		2.1
2183	*Systems analysts, computer programmers and related occupations*	1.4	
23	*Occupations in social sciences and related fields*		2.1
33	*Artistic, literary, performing arts and related occupations and occupations in sport and recreation*		2.1
3370	*Coaches, trainers, instructors and managers, sport and recreation*	1.4	
81/82	*Processing occupations*		1.4
85	*Product fabricating, assembling and repairing occupations*		1.4
87	*Construction trades occupations*		1.4

27	*Teaching and related occupations*	0.7
31	*Occupations in medicine and health*	0.7
71	*Farming, horticultural and animal-husbandry occupations*	0.7
91	*Transport equipment operating occupations*	0.7
9998	*Not employed*	11.4
9999	*Other occupations*	2.9

Field of Study: 31	***Secretarial Arts and Science***	*Level:*	***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Career Program			
41	*Clerical and related occupations*		71.4
4111	*Secretaries and stenographers*	45.2	
4143	*Electronic data-processing equipment operators*	6.0	
4131	*Bookkeepers and accounting clerks*	3.6	
4171	*Receptionists and information clerks*	3.6	
4133	*Tellers and cashiers*	2.4	
4197	*General office clerks*	2.4	
11	*Managerial, administrative and related occupations*		6.0
51	*Sales occupations*		2.4
61	*Service occupations*		2.4
21	*Occupations in natural sciences, engineering and mathematics*		1.2
23	*Occupations in social sciences and related fields*		1.2
31	*Occupations in medicine and health*		1.2
85	*Product fabricating, assembling and repairing occupations*		1.2
9998	*Not employed*		10.7
9999	*Other occupations*		2.4

Field of Study: 41	***Data Processing and Computer Science***	*Level:* ***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Career Program		
21	*Occupations in natural sciences, engineering and mathematics*	51.4
2183	*Systems analysts, computer programmers and related occupations*	48.6
41	*Clerical and related occupations*	18.9
4143	*Electronic data-processing equipment operators*	8.1
51	*Sales occupations*	5.4
11	*Managerial, administrative and related occupations*	2.7
27	*Teaching and related occupations*	2.7
61	*Service occupations*	2.7
85	*Product fabricating, assembling and repairing occupations*	2.7
9998	*Not employed*	10.8
9999	*Other occupations*	2.7

Field of Study: 51 ***Primary Industries*** *Level:* ***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Career Program			
21	*Occupations in natural sciences, engineering and mathematics*		21.4
2135	*Life sciences technologists and technicians*	7.1	
2117	*Physical sciences technologists and technicians*	4.8	
71	*Farming, horticultural and animal-husbandry occupations*		19.0
7195	*Nursery and related workers*	4.8	
11	*Managerial, administrative and related occupations*		7.1
31	*Occupations in medicine and health*		7.1
75	*Forestry and logging occupations*		7.1
41	*Clerical and related occupations*		4.8
51	*Sales occupations*		4.8
61	*Service occupations*		4.8
81/82	*Processing occupations*		4.8
85	*Product fabricating, assembling and repairing occupations*		2.4
87	*Construction trades occupations*		2.4
9998	*Not employed*		14.3
9999	*Other occupations*		0.0

Field of Study: 61	***Nursing***	*Level:*	***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Career Program			
31	*Occupations in medicine and health*		88.3
3131	*Nurses, graduate, except supervisors*	82.9	
3134	*Registered nursing assistants*	3.6	
11	*Managerial, administrative and related occupations*		0.9
41	*Clerical and related occupations*		0.9
51	*Sales occupations*		0.9
61	*Service occupations*		0.9
9998	*Not employed*		6.3
9999	*Other occupations*		1.8

Field of Study: 62	***Other Medical and Dental Services***	*Level:*	***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Career Program			
31	*Occupations in medicine and health*		70.2
3157	*Denturists, dental hygienists, dental assistants and dental technicians*	29.8	
3156	*Medical laboratory technologists and technicians*	17.5	
3155	*Radiological technicians*	7.0	
3117	*Osteopaths and chiropractors*	3.5	
21	*Occupations in natural sciences, engineering and mathematics*		3.5
27	*Teaching and related occupations*		3.5
61	*Service occupations*		3.5
11	*Managerial, administrative and related occupations*		1.8
23	*Occupations in social sciences and related fields*		1.8
41	*Clerical and related occupations*		1.8
87	*Construction trades occupations*		1.8
91	*Transport equipment operating occupations*		1.8
9998	*Not employed*		10.5
9999	*Other occupations*		0.0

Field of Study: 71 ***Electronic and Electrical Technologies*** *Level:* ***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Career Program			
21	*Occupations in natural sciences, engineering and mathematics*		26.8
2165	*Architectural and engineering technologists and technicians*	17.9	
85	*Product fabricating, assembling and repairing occupations*		26.8
8535	*Electronic and related equipment installing and repairing occupations, N.E.C.*	10.7	
8533	*Electrical and related equipment installing and repairing occupations, N.E.C.*	3.6	
87	*Construction trades occupations*		7.1
8735	*Wire communications and related equipment installing and repairing occupations*	3.6	
11	*Managerial, administrative and related occupations*		5.4
51	*Sales occupations*		5.4
33	*Artistic, literary, performing arts and related occupations and occupations in sport and recreation*		3.6
41	*Clerical and related occupations*		3.6
95	*Other crafts and equipment operating occupations*		3.6
61	*Service occupations*		1.8
9998	*Not employed*		10.7
9999	*Other occupations*		5.4

Field of Study: 72 ***Mechanical Technologies*** *Level:* ***Community College***

Occupation of Graduate Two Years After Graduation			*Per Cent Distribution*
Career Program			
85	*Product fabricating, assembling and repairing occupations*		25.0
	8581 *Motor-vehicle mechanics and repairers*	8.3	
	8584 *Industrial, farm and construction machinery mechanics and repairers*	8.3	
21	*Occupations in natural sciences, engineering and mathematics*		16.7
51	*Sales occupations*		8.3
11	*Managerial, administrative and related occupations*		4.2
71	*Farming, horticultural and animal-husbandry occupations*		4.2
81/82	*Processing occupations*		4.2
83	*Machine related occupations*		4.2
87	*Construction trades occupations*		4.2
91	*Transport equipment operating occupations*		4.2
95	*Other crafts and equipment operating occupations*		4.2
9998	*Not employed*		8.3
9999	*Other occupations*		12.5

Field of Study: 73 ***Chemical Technologies*** *Level:* ***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Career Program			
21	*Occupations in natural sciences, engineering and mathematics*		50.0
2117	*Physical sciences technologists and technicians*	30.0	
31	*Occupations in medicine and health*		10.0
81/82	*Processing occupations*		10.0
85	*Product fabricating, assembling and repairing occupations*		10.0
9999	*Other occupations*		20.0

Field of Study: 74 ***Architecture***	*Level:* ***Community College***
Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*
Career Program	
21 *Occupations in natural sciences, engineering and mathematics*	30.8
2163 *Draughting occupations*	11.5
2165 *Architectural and engineering technologists and technicians*	7.7
11 *Managerial, administrative and related occupations*	15.4
87 *Construction trades occupations*	11.5
41 *Clerical and related occupations*	7.7
51 *Sales occupations*	7.7
61 *Service occupations*	3.8
85 *Products fabricating, assembling and repairing occupations*	3.8
9998 *Not employed*	15.4
9999 *Other occupations*	3.8

Field of Study: 75 ***Other Engineering and Related Technologies*** *Level:* ***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Career Program			
21	*Occupations in natural sciences, engineering and mathematics*		29.8
2163	*Draughting occupations*	8.5	
2165	*Architectural and engineering technologists and technicians*	6.4	
2161	*Surveyors*	4.3	
85	*Product fabricating, assembling and repairing occupations*		10.6
11	*Managerial, administrative and related occupations*		6.4
41	*Clerical and related occupations*		6.4
83	*Machine related occupations*		6.4
87	*Construction trades occupations*		6.4
61	*Service occupations*		4.3
33	*Artistic, literary, performing arts and related occupations and occupations in sport and recreation*		2.1
51	*Sales occupations*		2.1
71	*Farming, horticultural and animal-husbandry occupations*		2.1
81/82	*Processing occupations*		2.1
91	*Transport equipment operating occupations*		2.1
95	*Other crafts and equipment operating occupations*		2.1
9998	*Not employed*		12.8
9999	*Other occupations*		4.3

Field of Study: 81	***Transportation***	*Level:*	***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Career Program		
41	*Clerical and related occupations*	16.7
85	*Product fabricating, assembling and repairing occupations*	16.7
91	*Transport equipment operating occupations*	16.7
9999	*Other occupations*	50.0

Field of Study: 91	***Mass Communication***	*Level:* ***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Career Program		
33	*Artistic, literary, performing arts and related occupations and occupations in sport and recreation*	33.3
3351	*Writers and editors, publication*	25.0
95	*Other crafts and equipment operating occupations*	16.7
11	*Managerial, administrative and related occupations*	8.3
41	*Clerical and related occupations*	8.3
51	*Sales occupations*	8.3
9999	*Other occupations*	25.0

Field of Study: 101 ***Community Service, Social Welfare, Household Science*** *Level:* ***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Career Program			
61	*Service occupations*		27.4
6112	*Police officers and detectives, government*	8.2	
6115	*Guards and related security occupations*	4.1	
6121	*Chefs and cooks*	2.7	
6141	*Funeral directors, embalmers and related occupations*	2.7	
41	*Clerical and related occupations*		15.1
23	*Occupations in social sciences and related fields*		13.7
2333	*Occupations in welfare and community services*	5.5	
2331	*Social workers*	4.1	
11	*Managerial, administrative and related occupations*		6.8
27	*Teaching and related occupations*		5.5
51	*Sales occupations*		5.5
31	*Occupations in medicine and health*		4.1
33	*Artistic, literary, performing arts and related occupations and occupations in sport and recreation*		1.4
71	*Farming, horticultural and animal-husbandry occupations*		1.4
85	*Product fabricating, assembling and repairing occupations*		1.4
91	*Transport equipment operating occupations*		1.4
93	*Material-handling and related occupations, N.E.C.*		1.4
9998	*Not employed*		12.3
9999	*Other occupations*		2.7

Field of Study: 111 ***General Arts and Science, Education, Law*** *Level:* ***Community College***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Career Program			
27	*Teaching and related occupations*		35.7
2731	*Elementary and kindergarten teachers*	19.0	
2795	*Teachers of exceptional students, N.E.C.*	11.9	
2739	*Elementary and secondary school teaching and related occupations, N.E.C.*	4.8	
23	*Occupations in social sciences and related fields*		19.0
2331	*Social workers*	7.1	
2333	*Occupations in welfare and community services*	4.8	
61	*Service occupations*		11.9
41	*Clerical and related occupations*		4.8
11	*Managerial, administrative and related occupations*		2.4
21	*Occupations in natural sciences, engineering and mathematics*		2.4
31	*Occupations in medicine and health*		2.4
51	*Sales occupations*		2.4
85	*Product fabricating, assembling and repairing occupations*		2.4
9998	*Not employed*		14.3
9999	*Other occupations*		2.4

University Fields of Study

	Page
Business Management and Commerce	35
Commerce, Management, Business Administration	
Specialized Administration Studies	
Secretarial Studies	
Education	37
Elementary/Secondary Teacher	
Higher Education - Post Secondary	
Kindergarten - Pre-School	
Non-teaching fields	
Physical Education	
Kinesiology	
Recreation	
Fine Arts	39
Fine Arts	
Other Performing Arts	
Applied Arts	
Music	
Library and Records Sciences	40
Library Science	
Other Records Science	
Other Humanities	41
Classics, dead language	
English language, literature	
French language	
Languages and/or literatures, other	
History	
Journalism	
Other Mass Communication	
Philosophy	
Religious Studies	
Theological Studies	
Translation and Interpretation	
Law	43
Law and Jurisprudence	
Social Work	44
Social Work and Social Welfare	
Other Social Sciences	45
Anthropology	
Archaeology	
Canadian Studies	
Area Studies, other	
Other Social Services	
Linguistics	
Economics	
Geography	
Man/Environment Studies	
Political Science	
Public Administration	
Psychology	
Sociology	
Criminology	
Demography	

	Page
Veterinary Science	**48**
Veterinary Medicine	
Veterinary Sciences	
Veterinary Medicine Specialties	
Other Agriculture and Biology	**49**
Agriculture	
Biochemistry	
Biology	
Botany	
Household Science Related	
Zoology	
Fisheries and Wildlife Management	
Biophysics	
Civil Engineering	**51**
Electrical Engineering	**52**
Mechanical Engineering	**53**
Other Applied Sciences	**54**
Architecture	
Chemical Engineering	
Aeronautical and Aerospace Engineering	
Design Systems Engineering	
Industrial Engineering	
Mining Engineering	
Metallurgical Engineering	
Other Engineering	
Engineering Science	
Engineering General	
Forestry	
Landscape Architecture	
Dentistry	**55**
Dentistry	
Dental Specialties	
Medicine	**56**
Medicine	
Basic Medical Sciences	
Medical Specialties	
Paraclinical Sciences	
Surgical Specialties	
Nursing	**57**
Pharmacy	**58**
Rehabilitation Medicine	**59**
Other Health	**60**
Epidemiology and Public Health	
Optometry	
Medical Technology	
Other Health Occupations	

	Page
Geology	**61**
Mathematics	**62**
Computer Science	
Mathematics	
Other Physical Sciences	**63**
Chemistry	
Physics	
Metallurgy Materials Science	
Meteorology	
Oceanography and Water Studies	

Field of Study:	***Business Management and Commerce***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Bachelors			
11	*Managerial, administrative and related occupations*		45.7
1171	*Accountants, auditors and other financial officers*	28.7	
1137	*Sales and advertising management occupations*	3.9	
1135	*Financial management occupations*	3.1	
41	*Clerical and related occupations*		12.4
4131	*Bookkeepers and accounting clerks*	5.4	
51	*Sales occupations*		10.9
5133	*Commercial travellers*	3.1	
21	*Occupations in natural sciences, engineering and mathematics*		7.8
2183	*Systems analysts, computer programmers and related occupations*	5.4	
23	*Occupations in social sciences and related fields*		2.3
61	*Service occupations*		2.3
9998	*Not employed*		10.9
9999	*Other occupations*		7.8

Field of Study:	***Business Management and Commerce***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Masters			
11	*Managerial, administrative and related occupations*		56.5
1171	*Accountants, auditors and other financial officers*	17.4	
1135	*Financial management occupations*	8.7	
1137	*Sales and advertising management occupations*	8.7	
1130	*General managers and other senior officials*	4.3	
1143	*Production management occupations*	4.3	
21	*Occupations in natural sciences, engineering and mathematics*		13.0
2145	*Industrial engineers*	4.3	
2183	*Systems analysts, computer programmers and related occupations*	4.3	
23	*Occupations in social sciences and related fields*		8.7
2311	*Economists*	4.3	
27	*Teaching and related occupations*		4.3
2711	*University teachers*	4.3	
41	*Clerical and related occupations*		4.3
51	*Sales occupations*		4.3
9998	*Not employed*		4.3
9999	*Other occupations*		4.3

Field of Study: **Education**		*Level:* **University**
Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Bachelors		
27 *Teaching and related occupations*		59.6
2731 *Elementary and kindergarten teachers*	29.2	
2733 *Secondary school teachers*	15.7	
2739 *Elementary and secondary school teaching and related occupations, N.E.C.*	6.7	
2795 *Teachers of exceptional students, N.E.C.*	5.6	
11 *Managerial, administrative and related occupations*		5.1
41 *Clerical and related occupations*		5.1
23 *Occupations in social sciences and related fields*		3.4
2333 *Occupations in welfare and community services*	1.7	
33 *Artistic, literary, performing arts and related occupations and occupations in sport and recreation*		3.4
3370 *Coaches, trainers, instructors and managers, sport and recreation*	2.2	
31 *Occupations in medicine and health*		2.2
61 *Service occupations*		2.2
51 *Sales occupations*		1.7
9998 *Not employed*		13.5
9999 *Other occupations*		3.9

Field of Study: **Education**	*Level:* **University**
Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*
Masters	
27 *Teaching and related occupations*	50.0
2733 *Secondary school teachers*	18.8
2731 *Elementary and kindergarten teachers*	12.5
2795 *Teachers of exceptional students, N.E.C.*	6.3
11 *Managerial, administrative and related occupations*	18.8
1133 *Administrators in teaching and related fields*	12.5
23 *Occupations in social sciences and related fields*	18.8
2315 *Psychologists*	6.3
2331 *Social workers*	6.3
2391 *Educational and vocational counsellors*	6.3
31 *Occupations in medicine and health*	6.2
9998 *Not employed*	6.2
9999 *Other occupations*	0.0

Field of Study: **Education**	*Level:* **University**
Occupatoin of Graduate Two Years After Graduation	*Per Cent Distribution*
Doctorates	
27 *Teaching and related occupations*	50.0
2711 *University teachers*	50.0
999 *Other occupations*	50.0

Field of Study:	***Fine Arts***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Bachelors		
33	*Artistic, literary, performing arts and related occupations and occupations in sport and recreation*	17.9
3313	*Product and interior designers*	10.7
27	*Teaching and related occupations*	14.3
41	*Clerical and related occupations*	10.7
9998	*Not employed*	21.4
9999	*Other occupations*	35.7

Field of Study:	***Fine Arts***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Masters		
27	*Teaching and related occupations*	50.0
9999	*Other occupations*	50.0

Field of Study:	***Library and Records Sciences***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Masters			
23	*Occupations in social sciences and related fields*		50.0
2351	*Librarians, archivists and conservators*	50.0	
11	*Managerial, administrative and related occupations*		12.5
27	*Teaching and related occupations*		12.5
41	*Clerical and related occupations*		12.5
9998	*Not employed*		12.5
9999	*Other occupations*		0.0

Field of Study:	***Other Humanities***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Bachelors			
33	*Artistic, literary, performing arts and related occupations and occupations in sport and recreation*		13.6
3351	*Writers and editors, publication*	6.2	
11	*Managerial, administrative and related occupations*		12.3
41	*Clerical and related occupations*		12.3
4111	*Secretaries and stenographers*	3.7	
27	*Teaching and related occupations*		11.1
2731	*Elementary and kindergarten teachers*	3.7	
25	*Occupations in religion*		6.2
51	*Sales occupations*		6.2
23	*Occupations in social sciences and related fields*		3.7
61	*Service occupations*		3.7
9998	*Not employed*		18.5
9999	*Other occupations*		12.3

Field of Study:	***Other Humanities***	*Level:*	***University***
Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Masters			
27	*Teaching and related occupations*		20.0
2733	*Secondary school teachers*	10.0	
33	*Artistic, literary, performing arts and related occupations and occupations in sport and recreation*		20.0
3351	*Writers and editors, publication*	10.0	
3355	*Translators and interpreters*	10.0	
11	*Managerial, administrative and related occupations*		10.0
25	*Occupations in religion*		10.0
9998	*Not employed*		20.0
9999	*Other occupations*		20.0

Field of Study:	***Other Humanities***	*Level:*	***University***
Occupation of Graduate Two Years After Graduation		*Per Cent Distribuiton*	
Doctorates			
27	*Teaching and related occupations*		50.0
2711	*University teachers*	50.0	
9999	*Other occupations*		50.0

Field of Study:	***Law***	*Level:*	***University***
Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Bachelors			
23	*Occupations in social sciences and related fields*		68.6
2343	*Lawyers and notaries*	62.9	
9998	*Not employed*		20.0
9999	*Other occupations*		11.4

Field of Study: ***Social Work***	*Level:* ***University***
Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*
Bachelors	
23 *Occupations in social sciences and related fields*	68.8
2331 *Social workers*	50.0
9998 *Not employed*	18.8
9999 *Other occupations*	12.5

Field of Study: ***Social Work***	*Level:* ***University***
Occupation of Graduate Two Years After Graduation	*Per Cent Distribuiton*
Masters	
23 *Occupations in social sciences and related fields*	83.3
2331 *Social workers*	66.7
9999 *Other occupations*	16.7

Field of Study:	***Other Social Sciences***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Bachelors			
11	*Managerial, administrative and related occupations*		21.4
1137	*Sales and advertising management occupations*	5.3	
1171	*Accountants, auditors and other financial officers*	5.3	
41	*Clerical and related occupations*		12.2
23	*Occupations in social sciences and related fields*		11.5
2331	*Social workers*	3.1	
51	*Sales occupations*		9.9
5135	*Sales clerks, commodities, N.E.C.*	3.8	
61	*Service occupations*		6.9
27	*Teaching and related occupations*		6.1
21	*Occupations in natural sciences, engineering and mathematics*		4.6
31	*Occupations in medicine and health*		2.3
9998	*Not employed*		15.3
9999	*Other occupations*		9.9

Field of Study:	***Other Social Sciences***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Masters			
23	*Occupations in social sciences and related fields*		29.4
2311	*Economists*	11.8	
2315	*Psychologists*	11.8	
2331	*Social workers*	5.9	
11	*Managerial, administrative and related occupations*		23.5
21	*Occupations in natural sciences, engineering and mathematics*		11.8
27	*Teaching and related occupations*		11.8
41	*Clerical and related occupations*		5.9
9998	*Not employed*		17.6
9999	*Other occupations*		0.0

Field of Study:	***Other Social Sciences***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Doctorates		
23	*Occupations in social sciences and related fields*	33.3
2315	*Psychologists*	33.3
27	*Teaching and related occupations*	33.3
2711	*University teachers*	33.3
9999	*Other occupations*	33.3

Field of Study: ***Veterinary Science***	*Level:* ***University***
Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*
Bachelors	
31 *Occupations in medicine and health*	100.0
3115 *Veterinarians*	100.0
9999 *Other occupations*	0.0

Field of Study:	***Other Agriculture and Biology***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Bachelors		
21	*Occupations in natural sciences, engineering and mathematics*	14.9
71	*Farming, horticultural and animal-husbandry occupations*	10.6
11	*Managerial, administrative and related occupations*	8.5
27	*Teaching and related occupations*	8.5
31	*Occupations in medicine and health*	8.5
51	*Sales occupations*	6.4
9998	*Not employed*	19.1
9999	*Other occupations*	23.4

Field of Study:	***Other Agriculture and Biology***	*Level:* ***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Masters		
21	*Occupations in natural sciences, engineering and mathematics*	40.0
27	*Teaching and related occupations*	20.0
9998	*Not employed*	40.0
9999	*Other occupations*	0.0

Field of Study:	***Other Agriculture and Biology***	*Level:* ***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Doctorates		
21	*Occupations in natural sciences, engineering and mathematics*	50.0
27	*Teaching and related occupations*	50.0
9999	*Other occupations*	0.0

Field of Study:	***Civil Engineering***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*	
Bachelors		
21 *Occupations in natural sciences, engineering and mathematics*		75.0
2143 *Civil engineers*	40.0	
9999 *Other occupations*		25.0

Field of Study:	***Civil Engineering***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*	
Masters		
21 *Occupations in natural sciences, engineering and mathematics*		50.0
2143 *Civil engineers*	50.0	
9999 *Other occupations*		50.0

Field of Study:	***Electrical Engineering***	*Level:*	***University***
Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Bachelors			
21 *Occupations in natural sciences, engineering and mathematics*			78.6
2144 *Electrical engineers*		57.1	
9999 *Other occupations*			21.4

Field of Study:	***Electrical Engineering***	*Level:*	***University***
Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Masters			
21 *Occupations in natural sciences, engineering and mathematics*			50.0
2144 *Electrical engineers*		50.0	
9999 *Other occupations*			50.0

Field of Study:	***Mechanical Engineering***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Bachelors		
21	*Occupations in natural sciences, engineering and mathematics*	66.7
2147	*Mechanical engineers*	23.8
9999	*Other occupations*	33.3

Field of Study:	***Other Applied Sciences***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*	
Bachelors		
21 *Occupations in natural sciences, engineering and mathematics*		60.9
2141 *Architects*	8.7	
2144 *Electrical engineers*	8.7	
9998 *Not employed*		10.9
9999 *Other occupations*		28.3

Field of Study:	***Other Applied Sciences***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*	
Masters		
21 *Occupations in natural sciences, engineering and mathematics*		75.0
2141 *Architects*	25.0	
9999 *Other occupations*		25.0

Field of Study: ***Dentistry***	*Level:* ***University***
Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*
Bachelors	
31 *Occupations in medicine and health*	88.9
3113 *Dentists*	88.9
9999 *Other occupations*	11.1

Field of Study: ***Medicine***	*Level:* ***University***
Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*
Bachelors	
31 *Occupations in medicine and health*	88.9
3111 *Physicians and surgeons*	77.8
9999 *Other occupations*	11.1

Field of Study: ***Medicine***	*Level:* ***University***
Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*
Masters	
31 *Occupations in medicine and health*	50.0
3111 *Physicians and surgeons*	50.0
9999 *Other occupations*	50.0

Field of Study: ***Nursing***	*Level:* ***University***
Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*
Bachelors	
31 *Occupations in medicine and health*	86.2
3131 *Nurses, graduate, except supervisors*	72.4
9999 *Other occupations*	13.8

Field of Study: ***Nursing***	*Level:* ***University***
Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*
Masters	
11 *Managerial, administrative and related occupations*	100.0
9999 *Other occupations*	0.0

Field of Study: **Pharmacy**	*Level:* **University**
Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*
Bachelors	
31 *Occupations in medicine and health*	92.3
3151 *Pharmacists*	92.3
9999 *Other occupations*	7.7

Field of Study:	***Rehabilitation Medicine***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Bachelors			
31	*Occupations in medicine and health*		81.8
3137	*Physiotherapists, occupational and other therapists*	81.8	
9999	*Other occupations*		18.2

Field of Study:	***Rehabilitation Medicine***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Masters			
31	*Occupations in medicine and health*		50.0
3137	*Physiotherapists, occupational and other therapists*	50.0	
9999	*Other occupations*		50.0

Field of Study:	***Other Health***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*
Bachelors	
31 *Occupations in medicine and health*	100.0
9999 *Other occupations*	0.0

Field of Study:	***Other Health***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation	*Per Cent Distribution*
Masters	
31 *Occupations in medicine and health*	66.7
3111 *Physicians and surgeons*	33.3
11 *Managerial, administrative and related occupations*	33.3
9999 *Other occupations*	0.0

Field of Study:	***Geology***	*Level:*	***University***
Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Bachelors			
21	*Occupations in natural sciences, engineering and mathematics*		62.5
2112	*Geologists and related occupations*	50.0	
9999	*Other occupations*		37.5

Field of Study:	***Geology***	*Level:*	***University***
Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*	
Masters			
21	*Occupations in natural sciences, engineering and mathematics*		100.0
9999	*Other occupations*		0.0

Field of Study:	***Mathematics***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Bachelors		
21	*Occupations in natural sciences, engineering and mathematics*	63.2
2183	*Systems analysts, computer programmers and related occupations*	57.9
11	*Managerial, administrative and related occupations*	13.2
1171	*Accountants, auditors and other financial officers*	7.9
9999	*Other occupations*	23.7

Field of Study:	***Mathematics***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Masters		
21	*Occupations in natural sciences, engineering and mathematics*	33.3
2183	*Systems analysts, computer programmers and related occupations*	33.3
9999	*Other occupations*	66.7

Field of Study:	***Other Physical Sciences***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Bachelors		
21	*Occupations in natural sciences, engineering and mathematics*	37.5
9999	*Other occupations*	62.5

Field of Study:	***Other Physical Sciences***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Masters		
21	*Occupations in natural sciences, engineering and mathematics*	50.0
9999	*Other occupations*	50.0

Field of Study:	***Other Physical Sciences***	*Level:*	***University***

Occupation of Graduate Two Years After Graduation		*Per Cent Distribution*
Doctorates		
21	*Occupations in natural sciences, engineering and mathematics*	100.0
9999	*Other occupations*	0.0

Detailed List of Minor Occupational Groups and Unit Groups

113/114 Other Managers and Administrators

1130 General Managers and Other Senior Officials
1131 Management Occupations, Natural Sciences and Engineering
1132 Management Occupations, Social Sciences and Related Fields
1133 Administrators in Teaching and Related Fields
1134 Administrators in Medicine and Health
1135 Financial Management Occupations
1136 Personnel and Industrial Relations Management Occupations
1137 Sales and Advertising Management Occupations
1141 Purchasing Management Occupations
1142 Services Management Occupations
1143 Production Management Occupations
1145 Management Occupations, Construction Operations
1146 Farm Management Occupations
1147 Management Occupations, Transport and Communications Operations

115/117 Occupations Related to Management and Administration

1171 Accountants, Auditors and Other Financial Officers
1174 Personnel and Related Officers
1175 Purchasing Officers and Buyers, except Wholesale and Retail Trade
1176 Inspectors and Regulatory Officers, Not Elsewhere Classified

211 Occupations in Physical Sciences

2111 Chemists
2112 Geologists
2113 Physicists
2117 Physical Sciences, Technologists and Technicians

213 Occupations in Life Sciences

2131 Agriculturists and Related Scientists
2133 Biologists and Related Scientists
2135 Life Sciences Technologists and Technicians
2139 Occupations in Life Sciences, Not Elsewhere Classified

214/215 Architects and Engineers

2141 Architects
2142 Chemical Engineers
2143 Civil Engineers
2144 Electrical Engineers
2145 Industrial Engineers
2146 Agricultural Engineers (see 2159)
2147 Mechanical Engineers
2151 Metallurgical/Materials Engineers
2153 Mining Engineers
2154 Petroleum Engineers
2157 Community Planners (see 2159)
2159 Other Professional Engineers, includes 2146 Agricultural Engineers, and 2157 Community Planners

216 Other Occupations in Architecture and Engineering

2161 Surveyors
2163 Draughting Occupations
2164 Architectural Technologists and Technicians (see 2165)
2165 Engineering Technologists and Technicians, includes 2164 Architectural Technologists and Technicians

218 Occupations in Mathematics, Statistics, Systems Analysis and Related Fields

2181 Mathematicians, Statisticians and Actuaries
2183 Systems Analysts, Computer Programmers and Related Occupations
2189 Occupations in Mathematics, Statistics, Systems Analysis and Related Fields, Not Elsewhere Classified

231 Occupations in Social Sciences

2311 Economists
2313 Sociologists, Anthropologists and Related Social Scientists
2315 Psychologists

233 Occupations in Social Work and Related Fields

2331 Social Workers
2333 Occupations in Welfare and Community Services

234	**Occupations in Law and Jurisprudence**
2343	Lawyers and Notaries
235	**Occupations in Library, Museum and Archival Sciences**
2351	Librarians, Archivists and Conservators
2353	Technicians in Library, Museum and Archival Sciences
239	**Other Occupations in Social Sciences and Related Fields**
2391	Educational and Vocational Counsellors
271	**University Teaching and Related Occupations**
2711	University Teachers
273	**Elementary and Secondary School Teaching and Related Occupations**
2731	Elementary and Kindergarten Teachers
2733	Secondary School Teachers
2739	Elementary and Secondary School Teaching and Related Occupations, Not Elsewhere Classified
279	**Other Teaching and Related Occupations**
2791	Community College and Vocational School Teachers
2792	Fine Arts Teachers, Not Elsewhere Classified
2795	Teachers of Exceptional Students, Not Elsewhere Classified
311	**Health Diagnosing and Treating Occupations**
3111	Physicians and Surgeons
3113	Dentists
3115	Veterinarians
3117	Osteopaths and Chiropractors
3119	Health Diagnosing and Treating Occupations, Not Elsewhere Classified
313	**Nursing, Therapy and Related Assisting Occupations**
3131	Nurses, Registered, Graduate and Nurses-in-Training

3134	Registered Nursing Assistants
3136	Audio and Speech Therapists, includes 3137 Physiotherapists, and 3138 Occupational Therapists
3137	Physiotherapists (see 3136)
3138	Occupational Therapists (see 3136)

315	**Other Occupations in Medicine and Health**
3151	Pharmacists
3152	Dietitians and Nutritionists
3153	Optometrists
3154	Dispensing Opticians
3155	Radiological Technologists and Technicians
3156	Medical Laboratory Technologists and Technicians
3157	Denturists, includes 3158 Dental Hygienists/Assistants, and 3161 Dental Laboratory Technicians
3158	Dental Hygienists/Assistants (see 3157)
3161	Dental Laboratory Technicians (see 3157)

331	**Occupations in Fine and Commercial Art, Photography and Related Fields**
3313	Product and Interior Designers
3314	Advertising and Illustrating Artists
3315	Photographers and Camera Operators

333	**Occupations in Performing and Audio-Visual Arts**
3330	Producers and Directors, Performing and Audio-Visual Arts
3337	Radio and Television Announcers

335	**Occupations in Writing**
3351	Writers and Editors
3355	Translators and Interpreters

337	**Occupations in Sports and Recreation**
3370	Coaches, Trainers and Inspectors, Sports and Recreation

411 Stenographic and Typing Occupations

4111 Secretaries and Stenographers
4113 Typists and Clerk-typists

413 Bookkeeping, Account-Recording and Related Occupations

4131 Bookkeepers and Accounting Clerks
4133 Cashiers and Tellers
4135 Insurance, Bank and Other Finance Clerks
4137 Statistical Clerks

414 Office Machine and Electronic Data-Processing Equipment Operators

4143 Electronic Data Processing Equipment Operators

415 Material, Recording, Scheduling and Distributing Occupations

4151 Production Clerks
4153 Shipping and Receiving Clerks
4155 Stock Clerks and Related Occupations

417 Reception, Information, Mail and Message Distribution Occupations

4171 Receptionists and Information Clerks

419 Other Clerical and Related Occupations

4192 Claim Adjusters
4197 General Office Clerks

513/514 Sales Occupations, Commodities

5130 Supervisors: Sales Occupations, Commodities
5131 Technical Sales Occupations and Related Advisers
5133 Commercial Travellers
5135 Sales Clerks and Salespersons, Commodities, Not Elsewhere Classified

517 Sales Occupations Services

5170 Supervisors: Sales Occupations, Services
5171 Insurance Sales Occupations and Agents

5172	Real Estate Sales Occupations
5173	Sales Agents and Trades, Securities
5174	Advertising Sales Occupations

611	**Protective Service Occupations**
6112	Police Officers and Detectives, Government
6115	Guards and Related Security Occupations

612	**Food and Beverage Preparation and Related Service Occupations**
6120	Supervisors: Food and Beverage Preparation and Related Service
6121	Chefs and Cooks
6125	Food and Beverage Serving Occupations

614	**Personal Service Occupations**
6141	Funeral Directors, Embalmers and Related Occupations
6143	Barbers, Hairdressers and Related Occupations

619	**Other Service Occupations**
6191	Janitors, Charworkers and Cleaners
6198	Occupations in Labouring and Other Elemental Work: Other Services

711	**Farmers**
7113	Livestock Farmers, includes 7115 Crop Farmers, and 7119 Farmers, Not Elsewhere Classified
7115	Crop Farmers (see 7113)
7119	Farmers, Not Elsewhere Classified (see 7113)

718/719	**Other Farming, Horticultural and Animal Husbandry Occupations**
7195	Nursery and Related Workers

731	**Fishing, Trapping and Related Occupations**
7311	Captains and Other Officers, Fishing Vessels

751	**Forestry and Logging Occupations**
7516	Log Inspecting, Grading, Scaling and Related Occupations
771	**Mining and Quarrying Including Oil and Gas Field Occupations**
7711	Rotary Well-drilling and Related Occupations
7713	Rock and Soil Drilling Occupations
7715	Blasting Occupations
813	**Metal Processing and Related Occupations**
8137	Moulding, Coremaking and Metal Casting Occupations
831	**Metal Machining Occupations**
8311	Tool and Die Making Occupations
8313	Machinist and Machine Tool Setting-up Occupations
8316	Inspecting, Testing, Grading and Sampling Occupations: Metal Machining
8319	Metal Machining Occupations, Not Elsewhere Classified
833	**Metal Shaping and Forming Occupations, Except Machining**
8333	Sheet Metal Workers
8335	Welding and Flamecutting Occupations
8336	Inspecting, Testing, Grading and Sampling Occupations: Metal Shaping and Forming, Except Machining
8337	Boilermakers, Platers and Structural Metal Workers
851	**Fabricating and Assembling Occupations, Metal Products, Not Elsewhere Classified**
8513	Motor Vehicle Fabricating and Assembling Occupations, Not Elsewhere Classified
8515	Aircraft Fabricating and Assembling Occupations, Not Elsewhere Classified
853	**Fabricating, Assembling, Installing and Repairing Occupations: Electrical, Electronic and Related**
8533	Electrical and Related Equipment Installing and Repairing Occupations
8535	Electronic and Related Equipment Installing and Repairing Occupations, Not Elsewhere Classified

8536	Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling, Installing
8537	Radio and Television Service Repairers

854	**Fabricating, Assembling and Repairing Occupations, Wood Products**
8541	Cabinet and Wood Furniture Makers

858	**Mechanics and Repairers, Except Electrical**
8581	Motor Vehicle Mechanics and Repairers
8582	Aircraft Mechanics and Repairers
8583	Rail Transport Equipment Mechanics and Repairers
8584	Industrial, Farm and Construction Machinery Mechanics and Repairers
8585	Business and Commercial Machine Mechanics and Repairers
8587	Watch and Clock Repairers
8588	Precision Instrument Mechanics and Repairers
8589	Other Mechanics and Repairers, Not Elsewhere Classified

859	**Other Product Fabricating, Assembling and Repairing Occupations**
8591	Jewellery and Silverware Fabricating, Assembling and Repairing Occupations
8592	Marine Craft Fabricating, Assembling and Repairing Occupations

871	**Excavating, Grading, Paving and Related Occupations**
8711	Excavating, Grading and Related Occupations

873	**Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing Occupations**
8731	Electrical Power Line Workers and Related Occupations
8733	Construction Electricians and Repairers
8735	Wire Communications and Related Equipment Installing and Repairing Occupations
8736	Inspecting, Testing, Grading and Sampling Occupations: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing

878/879 Other Construction Trades Occupations

8781 Carpenters and Related Occupations
8782 Brick and Stone Masons and Tilesetters
8783 Concrete Finishing and Related Occupations
8784 Plasterers and Related Occupations
8785 Painters, Paperhangers and Related Occupations
8786 Insulating Occupations, Construction
8787 Roofing, Waterproofing and Related Occupations
8791 Pipefitting, Plumbing and Related Occupations
8793 Structural Metal Erectors
8795 Glaziers

911 Air Transport Operating Occupations

9111 Air Pilots, Navigators and Flight Engineers

913 Railway Transport Operating Occupations

9131 Locomotive Operating Occupations

915 Water Transport Operating Occupations

9151 Deck Officers
9153 Engineering Officers, Ship

917 Motor Transport Operating Occupations

9171 Bus Drivers
9175 Truck Drivers

951 Printing and Related Occupations

9512 Printing Press Occupations
9515 Photoengraving and Related Occupations

953	**Stationary Engine and Utilities Equipment Operating and Related Occupations**
9531	Power Station Operators
9539	Stationary Engine and Utilities Equipment Operating and Related Occupations, Not Elsewhere Classified

955	**Electronic and Related Communications Equipment Operating Occupations, Not Elsewhere Classified**
9551	Radio and Television Broadcasting Equipment Operators
9555	Sound and Video Recording and Reproduction Equipment Operators

General Managers and Other Senior Officials

Examples: General Sales Manager
Managing Director
Program Manager
Executive Director

Average salaries, full-time employed two years after graduation (1984):
Community college: $27,100 University: $33,500

Employment trends (000s) 1985: 83.2 1992: 93.8 Change: 10.6

Estimated attrition due to labour force withdrawals (000s) 1985-92: 17.6

Total requirements (000s): 28.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	9%	40%	Under 25 years:	2%	25%
Males:	91%	60%	Over 54 years:	21%	12%

Employment is expected to grow at about an average rate based on the outlook in various Service sectors where the occupation is concentrated. Reflecting the employment patterns of these sectors, the occupation may be moderately sensitive to changing economic conditions.

There is increasing pressure on managers to have more than the traditional skills. More emphasis is being placed on sales and marketing functions to increase the organization's effectiveness.

At the 1981 Census, males were predominant in this group. A relatively large proportion was also older than 54, implying that the increases in labour demand owing to age-retirement may be great. The small percentage of young people in the group reflects the likelihood that people move into these occupations later in their careers, often from other professional and technical specialties.

1131

Management Occupations, Natural Sciences and Engineering

Examples: Data Processing and Systems Analysis Manager
Geochemical Manager
Geological Manager
Mathematical Services Manager

Employment trends (000s) 1985: 11.6	1992: 13.1	Change: 1.5
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.4
	Total requirements (000s):	2.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	6%	40%	Under 25 years:	2%	25%
Males:	94%	60%	Over 54 years:	15%	12%

Employment is expected to grow at an average rate, based on the outlook in the Business Services and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions.

The increasing importance being placed on science and engineering in our society will create concomitant increases in the demand for managers with technical expertise.

At the 1981 Census, males were predominant in this occupational group. Furthermore, a relatively high percentage of the group was older than 54, implying that there may be large increases in labour demand because of age-retirement. The small proportion of young people in the occupation reflects the likelihood that people move into these occupations later in their careers, often from other professional and technical specialties.

The geographical distribution of this group is also a noteworthy factor: over half (54.4%) were located in Ontario at the 1981 Census.

Management Occupations, Social Sciences and Related Fields

Examples: Chief Librarian
Welfare Agency Official
Community Centre Director

Employment trends (000s) 1985: 7.8	1992: 9.0	Change: 1.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.6
	Total requirements (000s):	2.8

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	48%	40%	Under 25 years:	6%	25%
Males:	52%	60%	Over 54 years:	14%	12%

Employment is expected to grow at about an average rate, based on the outlook in the Health/Welfare and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, the occupation may not be particularly sensitive to changing economic conditions. These occupations, however, are somewhat sensitive to government spending policies.

At the 1981 Census, females and males were almost evenly distributed in this occupational group. The proportion older than 54 was about average, implying that increases in labour demand due to age-retirement may be moderate. The low representation of young people in the group reflects the likelihood that people usually move into these occupations later in their careers, often from other professional and technical specialties.

1133

Administrators in Teaching and Related Fields

Examples: Principal
Proprietor, Business College
Registrar
University Department Head
Educational Director

Employment trends (000s) 1985: 34.6	1992: 36.4	Change: 1.8
Estimated attrition due to labour force withdrawals (000s)		1985-92: 5.1
	Total requirements (000s):	6.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	24%	40%	Under 25 years:	2%	25%
Males:	76%	60%	Over 54 years:	12%	12%

Employment is expected to grow at a less-than-average rate, based on the outlook in the Education Services sector where these occupations are largely concentrated. In line with the traditional employment patterns of this sector, these occupations may be particularly sensitive to changing demographic conditions.

Keen competition for these administrative positions will come from secondary school teachers who have become surplus because of declining enrolment in their classrooms. The number of administrators in this group is directly related to student enrolment and teaching positions.

At the 1981 Census, males were predominant in this occupational group. In addition, an average proportion was older than 54. This indicates that increases in labour demand due to age-retirement may be moderate. The small proportion of young people in this group reflects the traditional pattern that people move into these administrative positions later in their careers.

For further information, contact:

Canadian School Trustees' Association
1140 Morrison Drive, Suite 220
Ottawa, Ontario
K2H 8S9

(613) 829-9108

Administrators in Medicine and Health

Examples: Clinical Director
Director of Rehabilitation
First Aid Director
Nutrition Director
Nursing Director
Hospital Administrator

Employment trends (000s) 1985: 12.1	1992: 14.2	Change: 2.1
Estimated attrition due to labour force withdrawals (000s)		1985-92: 2.7
	Total requirements (000s):	4.8

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	52%	40%	Under 25 years:	2%	25%
Males:	48%	60%	Over 54 years:	18%	12%

Employment is expected to grow at the average rate, based on the outlook in the Health/Welfare and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be particularly sensitive to future government expenditure policies.

Developments in new health-care delivery systems are resulting in a shift towards less-acute facilities such as nursing homes and chronic institutions. There is also a move towards new programs such as day surgery, home care and day care. These trends may increase the demand for personnel to administer these services.

Best prospects lie in institutions other than acute-care hospitals: rehabilitation homes, chronic-care institutions, community health and social centres. Demand will also be strong in remote areas where it is generally difficult to attract and keep qualified and experienced people.

Many of these occupations develop as a result of career and occupational mobility. Academic programs in health administration provide one way of entering this occupation but previous experience in the health profession is often required prior to these programs.

At the 1981 Census, females and males were almost evenly distributed in this occupational group. A relatively large proportion was older than 54, foreshadowing large increases in labour demand owing to age-retirement. The low number of young people in the occupation reflects the likelihood that people generally move into these occupations later in their career.

For further information, contact:

Canadian Hospital Association
Research Department
17 York St.
Ottawa, Ontario
K1N 9J6
(613) 238-8005

The Canadian Dietetic Association
480 University Avenue
Suite 604
Toronto, Ontario
M5G 1V2
(416) 596-0857

Canadian Nurses Association
50 The Driveway
Ottawa, Ontario
K2P 1E2
(613) 237-2133

Financial Management Occupations

Examples: Bank Director
Branch Manager
Treasurer
Loan and Credit Manager
Controller
Vice-President Finance

Average salaries, full-time employed two years after graduation (1984):
Community college: $19,200 University: $29,500

Employment trends (000s) 1985: 61.0	1992: 69.2	Change: 8.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 7.5
	Total requirements (000s):	15.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	23%	40%	Under 25 years:	6%	25%
Males:	77%	60%	Over 54 years:	9%	12%

Employment is expected to grow at an average rate based on the outlook in the Finance sector where these occupations are concentrated. Based on past employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions.

The expansion of corporate financial and auditing controls may improve the outlook for financial managers. As new technologies take over routine accounting functions, the financial manager will most likely assist in the development of computer software applications.

At the 1981 Census, males were predominant in this occupational group. The distribution of females has since increased and in all probability the trend will continue. In addition, a below-average proportion of the group was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

For further information, contact:

The Society of Management Accountants
154 Main Street, E.
Hamilton, Ontario
L8N 3C3
(416) 525-4100

or Appropriate Provincial C.A. Institute

Canadian Bankers Association
P.O. Box 348
2 First Canadian Place
Toronto, Ontario
M5X 1T1
(416) 362-6092 Ext. 311

1136

Personnel and Industrial Relations Management Occupations

Examples: Employment Manager
Labour Relations Director
Manager of Personnel Department

Employment trends (000s) 1985: 25.6	1992: 29.2	Change: 3.6
Estimated attrition due to labour force withdrawals (000s)		1985-92: 3.3
	Total requirements (000s):	6.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	28%	40%	Under 25 years:	6%	25%
Males:	72%	60%	Over 54 years:	12%	12%

Employment is expected to grow at an average rate based on the outlook in various Service sectors, Public Administration, and Trade sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions.

The demand for personnel managers may be affected by the need to negotiate agreements calling for employee benefits in lieu of wage increases, job-sharing arrangements in the face of technological advancements, and productivity enhancement to overcome rising costs.

At the 1981 Census, males represented a 7 to 3 majority over females in this occupational group. An average proportion of this group was older than 54, so that increases in labour demand owing to age-retirement may be moderate.

Sales and Advertising Management Occupations

Examples: Advertising Executive
Clothing Store Manager
District Sales Manager
Retail Department Manager
Marketing Manager
Sales Director
Public Relations Manager

Average salaries, full-time employed two years after graduation (1984):
Community college: $15,600 University: $22,900

Employment trends (000s) 1985: 180.4 992: 196.9 Change: 16.5

Estimated attrition due to labour force withdrawals (000s) 1985-92: 23.6

Total requirements (000s): 40.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	21%	40%	Under 25 years:	10%	25%
Males:	79%	60%	Over 54 years:	12%	12%

Employment is expected to grow at an average rate based on the outlook in the Trade sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions.

Prospects appear brighter for those with knowledge of automated inventory control and information systems. Also, in a highly competitive, tight economy, emphasis is being placed on the ability to successfully market company goods.

At the 1981 Census, males were predominant in this occupational group. Also, an average proportion of the group was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

1141

Purchasing Management Occupations

Employment trends (000s) 1985: 12.4	1992: 13.6	Change: 1.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 2.2
	Total requirements (000s):	3.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	14%	40%	Under 25 years:	11%	25%
Males:	86%	60%	Over 54 years:	19%	12%

Employment is expected to grow at an average rate based on the outlook in the Trade sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions.

This occupational group is involved in buying and negotiating and operations. According to an association survey, technological change is having a positive effect on this group as the demand for sophisticated information is increasing. As computer technology changes tasks, emphasis will be on negotiating skills and the supplier performance aspects of purchasing.

At the 1981 Census, males were predominant in this occupational group. Further, a relatively large proportion of the group was older than 54, implying that there may be large increases in labour demand owing to age-retirement.

For further information, contact:

Purchasing Management Association of Canada
2 Carlton Street, Suite 815
Toronto, Ontario
M5B 1J3
(416) 977-7111

Services Management Occupations

Examples: Hotel Manager
Motel Manager
Laundry and Dry Cleaning Manager
Janitorial Services Manager
Restaurant Manager

Employment trends (000s) 1985: 49.1	1992: 60.4	Change: 11.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 9.8
	Total requirements (000s):	21.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	30%	40%	Under 25 years:	12%	25%
Males:	70%	60%	Over 54 years:	14%	12%

Employment is expected to grow faster than an average rate, based on the outlook in the Personal/Hospitality Services sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions.

The growth of the tourism industry may expand opportunities for managers of hospitality establishments in the short term as more Canadians opt to spend their vacations in Canada, and U.S. visitors take advantage of favourable currency exchange rates.

1143

Production Management Occupations

Examples: Dairy Manager
Field Director
Operation Manager
Plant Superintendent
Refinery Superintendent

Average salaries, full-time employed two years after graduation (1984):
Community college: $18,100 University: $25,200

Employment trends (000s) 1985: 45.8 1992: 50.9 Change: 5.1

Estimated attrition due to labour force withdrawals (000s) 1985-92: 6.2

Total requirements (000s): 11.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	8%	40%	Under 25 years:	5%	25%
Males:	92%	60%	Over 54 years:	14%	12%

Employment is expected to grow at an average rate based on the outlook in Trade and various Manufacturing sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions. Prospects are brightest for those with knowledge of CAD/CAM and robotics.

This occupational group is involved in preparatory and follow-up work relating to the movement and tranformation of products during manufacture. These managers are closely linked to industrial production and it's an area with rapid technological changes. Management is no longer involved in linear repetitive computer processing but has access to a sophisticated network with a range of information channels to assist in problem analysis and the decision-making process.

At the 1981 Census, males were a 9 to 1 majority over females in this occupational group. In addition, an about-average proportion of the group was older than 54, so that increases in labour demand owing to age-retirement may be moderate. The small percentage of young people in the occupation reflects the likelihood that people move into these occupations later in their careers, often from other professional and technical specialties.

These occupations are facing labour market conditions that are among the most favourable as indicated by its lower-than-average U.I. claimant rate and higher-than-average hard-to-fill vacancy rate.

Management Occupations, Construction Operations

Employment trends (000s) 1985: 20.9	1992: 22.3	Change: 1.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 2.9
	Total requirements (000s):	4.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	2%	40%	Under 25 years:	3%	25%
Males:	98%	60%	Over 54 years:	15%	12%

Employment is expected to grow at a less-than-average rate, based on the outlook in the Construction sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. The opportunities for construction managers and levels of construction activity are linked to the growth in the economy.

At the 1981 Census, males held a greater than 9 to 1 majority over females in this occupational group. Further, a relatively large proportion of the group was older than 54, indicating there will be a large increase in labour demand owing to age-retirement. The low number of young people in the occupation reflects the likelihood that people move into these occupations later in their careers, often from other professional and technical specialties.

Farm Management Occupations

Employment trends (000s) 1985: 28.9	1992: 32.9	Change: 4.0
Estimated attrition due to labour force withdrawals (000s)		1985-92: 7.0
	Total requirements (000s):	11.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	15%	40%	Under 25 years:	18%	25%
Males:	85%	60%	Over 54 years:	20%	12%

Employment is expected to grow at an average rate, based on the outlook in the Agriculture sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions.

The growing number of larger farms (i.e., agri-businesses) increases the opportunities for farm managers, especially those who are familiar with new farm management computer systems to regulate feeding and planting. However, farm financial conditions and changes in farm structure could limit employment growth. The outlook for managers with a wide range of scientific, business and personnel management skills is promising but opportunities are limited to the larger, more profitable farms.

At the 1981 Census, males were predominant in this occupational group. A relatively high percentage of the group was older than 54, implying that the increases in labour demand owing to age-retirement may be high.

For further information, contact:

Agriculture Canada
Farm Input Section
Sir John Carling Building
930 Carling Avenue
Ottawa, Ontario
K1A 0C5
(613) 995-9554

Management Occupations, Transport and Communications Operations

Examples: Airline Manager
Traffic Manager
Flight Director
Port Engineer

Employment trends (000s) 1985: 15.7	1992: 18.0	Change: 2.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 2.2
	Total requirements (000s):	4.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	13%	40%	Under 25 years:	3%	25%
Males:	87%	60%	Over 54 years:	15%	12%

Employment is expected to grow at an average rate, based on the outlook in Miscellaneous Transport/Storage, Telephone and Telegraph sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions.

At the 1981 Census, males comprised the large majority in this occupational group. A relatively large proportion of the group was older than 54, indicating that increases in labour demand owing to age-retirement may be high. The low representation of young people in the occupation reflects the likelihood that people move into these occupations later in their careers, often from other professional and technical specialties.

1171

Accountants, Auditors and Other Financial Officers

Examples: Chartered Accountant
Cost Accountant
Industrial Accountant
Tax Analyst
Public Accountant
Loan Adviser
Liquidator
Mortgage Consultant
Insurance Underwriter

Average salaries, full-time employed two years after graduation (1984):
Community college: $18,000 University: $24,700

Employment trends (000s) 1985: 149.6	1992: 170.2	Change: 20.6
Estimated attrition due to labour force withdrawals (000s)		1985-92: 21.7
	Total requirements (000s):	42.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	31%	40%	Under 25 years:	6%	25%
Males:	69%	60%	Over 54 years:	9%	12%

Employment is expected to grow at an average rate, based on the outlook in Finance, Business Services and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions.

The computer has enhanced the ability of accountants to conduct regular accounting functions and to make budget simulations. Also, the emergence on the market of computer packages able to calculate personal income taxes may directly affect the employment of tax accountants.

However, as business transactions increase and become more complex, accountants will likely be needed to provide financial information, and advice on tax structures. Opportunities should be favourable for tax accountants. These new technologies will change the skills required by accountants from basic recording of information to being able to provide qualitative data as organizations seek to improve production standards and achieve greatest return on investment.

At the 1981 Census, males represented a 7 to 3 majority over females in this occupational group. In addition, a below-average proportion was older than 54, so that the increases in labour demand due to age-retirement may not be great.

For further information, contact:

Society of Management Accountants
154 Main Street E.
Hamilton, Ontario
L8N 3G3
(416) 525-4100

Canadian Bankers Association
P.O. Box 348
2 First Canadian Place
Toronto, Ontario
M5X 1E1
(416) 362-6092 Ext. 311

or Appropriate Provincial C.A. Institute

1174

Personnel and Related Officers

Examples: Employment Counsellor
Staff Training Officer
Labour Relations Representative
Job and Wage Analyst

Employment trends (000s) 1985: 31.5	1992: 36.0	Change: 4.5
Estimated attrition due to labour force withdrawals (000s)		1985-92: 4.9
	Total requirements (000s):	9.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	47%	40%	Under 25 years:	11%	25%
Males:	53%	60%	Over 54 years:	11%	12%

Employment is expected to grow at an average rate, based on the outlook in Public Administration, various Durable Manufacturing sectors, and Education sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions.

Prospects appear better for those with knowledge of automated pay and attendance systems. Also in demand will be personnel officers who have the expertise to help administer the growing number of productivity schemes and human resource plans, as well as to consider the introduction of technological innovations in collective bargaining agreements.

At the 1981 Census, females and males were almost evenly distributed in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

Purchasing Officers and Buyers, except Wholesale and Retail Trade

Examples: Procurement Officer
Television-time Buyer

Employment trends (000s) 1985: 15.6	992: 17.5	Change: 1.9
Estimated attrition due to labour force withdrawals (000s)		1985-92: 2.6
	Total requirements (000s):	4.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	22%	40%	Under 25 years:	8%	25%
Males:	78%	60%	Over 54 years:	16%	12%

Employment is expected to grow at an average rate, based on the outlook in Public Administration and various Durable Manufacturing sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions. In an increasingly cost-conscious economy, buyers will likely be in greater demand in the future.

At the 1981 Census, males were predominant in this occupational group. A relatively large proportion of this group was older than 54, implying that increases in labour demand owing to age-retirement will likely be high.

1176

Inspectors and Regulatory Officers, Not Elsewhere Classified

Examples: Insurance Inspector
Ship Inspector
Tariff Inspector
Transportation Inspector

Employment trends (000s) 1985: 6.4	1992: 7.3	Change: 0.9
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.0
	Total requirements (000s):	1.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	14%	40%	Under 25 years:	10%	25%
Males:	86%	60%	Over 54 years:	17%	12%

Employment is expected to grow at an average rate, based on the outlook in the Health/Welfare, Finance, and Business Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions.

At the 1981 Census, males dominated this occupational group. A relatively large proportion of the group was older than 54, implying that increases in labour demand owing to age-retirement may be high.

2111

Chemists

Examples: Analytical Chemist
Physical Chemist
Inorganic Chemist
Organic Chemist
Polymer Chemist
Industrial Chemical Chemist
Petroleum Chemist
Agricultural Chemist
Food Chemist
Nutritional Chemist

Employment trends (000s) 1985: 8.8	1992: 9.8	Change: 1.0
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.0
	Total requirements (000s):	2.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	20%	40%	Under 25 years:	9%	25%
Males:	80%	60%	Over 54 years:	10%	12%

Employment is expected to grow at an average rate, based on the outlook in the Chemical Products, Public Administration, and Business Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations will be sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The majority of chemists are employed in research and development of new products and processes, in analytical and control work for production, in technical service for customers, in teaching and research in universities and colleges and in government laboratories and provincial research organizations. Quality control is another area of considerable employment for this occupation group.

At the 1981 Census, males were the majority by 8 to 2 over females in this occupational group. An average proportion of this group was older than 54, so that increases in labour demand owing to age-retirement may be moderate.

The geographical distribution for this occupation is also a factor to be noted. Over half (50.3%) of its workforce was located in Ontario at the time of the 1981 Census.

For further information, contact:

Chemical Institute of Canada
151 Slater Street, Suite 906
Ottawa, Ontario
K1P 5H4
(613) 233-5623

Canadian Manufacturers of Chemical Specialties Association
116 Albert Street, Suite 710
Ottawa, Ontario
K1P 5G3
(613) 232-6616

2112

Geologists

Examples: Geochemist
Geophysicist
Hydrologist
Oceanographer
Mineralogist
Seismologist

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $31,200

Employment trends (000s) 1985: 7.3 1992: 8.2 Change: 0.9

Estimated attrition due to labour force withdrawals (000s) 1985-92: 0.7

Total requirements (000s): 1.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	10%	40%	Under 25 years:	14%	25%
Males:	90%	60%	Over 54 years:	8%	12%

Employment is expected to grow at an average rate, based on the outlook in Petroleum/Gas Wells/Incidental Mining Services, Business Services, and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations are particularly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. While openings may be created by the ongoing search for new sources of energy, the advent of efficient 'electronic prospectors' and sophisticated aerial detecting devices may reduce the relative need for geologists in the economy. Deep sea exploration and research should continue to support the demand for oceanographers.

At the 1981 Census, males were a 9 to 1 majority over females in this occupational group. In addition, a below-average proportion of this group was older than 54, implying that increases in labour demand owing to age-retirement will not be large.

2113

Physicists

Examples: Acoustician
Experimental Physicist
Laser Scientist
Nuclear Physicist
Biophysicist

Employment trends (000s) 1985: 1.3	1992: 1.5	Change: 0.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.1
	Total requirements (000s):	0.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	5%	40%	Under 25 years:	5%	25%
Males:	95%	60%	Over 54 years:	11%	12%

Employment is expected to grow at an average rate, based on the outlook in the Public Administration, Business Services and Education Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The widening use of lasers in medicine and telecommunications, the strong interest in discovering new, more durable materials, the pursuit of more aerodynamically sound vehicles and the growing use of nuclear energy and nuclear medicine could translate into demand for this group of scientists.

At the 1981 Census, males were predominant in this occupational group. An average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

The geographical distribution of this occupation is also a noteworthy factor: over half (54.1%) of its workforce was located in Ontario at the time of the 1981 Census.

Physical Sciences, Technologists and Technicians

Examples: Biochemistry Technician
Metallurgical Tester
X-Ray Technician

Average salaries, full-time employed two years after graduation (1984):
Community college: $20,600 University: $23,900

Employment trends (000s) 1985: 19.2 1992: 21.5 Change: 2.3

Estimated attrition due to labour force withdrawals (000s) 1985-92: 1.9

Total requirements (000s): 4.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	24%	40%	Under 25 years:	33%	25%
Males:	76%	60%	Over 54 years:	7%	12%

Employment is expected to grow at an average rate, based on the outlook in the Public Administration, and Business Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that the increases in labour demand owing to age-retirement may not be large. The large proportion of young people in the occupation reflects the likelihood that this is a relatively new occupation which offers entry-level employment for university and college graduates.

2131

Agriculturists and Related Scientists

Examples: Agricultural Adviser
Horticulturist
Dairy Scientist
Plant Breeder

Employment trends (000s) 1985: 6.7	1992: 7.4	Change: 0.7
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.9
	Total requirements (000s):	1.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	12%	40%	Under 25 years:	9%	25%
Males:	88%	60%	Over 54 years:	15%	12%

Employment is expected to grow at the average rate, based on the outlook in the Public Administration, Forestry and Agriculture sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may not be particularly sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Those involved in biotechnological research and its application to the agricultural sector should enjoy good prospects. Also, openings may exist in companies that carry on business transactions with farmers, such as banks and equipment manufacturers.

At the 1981 Census, males were predominant in this occupational group. A relatively large proportion of this group was older than 54, implying that the increases in labour demand due to age-retirement may be large.

For further information, contact:

Agricultural Institute
151 Slater Street, Suite 907
Ottawa, Ontario
K1P 5H4
(613) 232-9459

Biologists and Related Scientists

Examples: Anatomist
Botanist
Cytologist
Immunologist
Virologist

Employment trends (000s) 1985: 7.1	1992: 8.0	Change: 0.9
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.8
	Total requirements (000s):	1.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	31%	40%	Under 25 years:	12%	25%
Males:	69%	60%	Over 54 years:	6%	12%

Employment is expected to grow at the average rate, based on the outlook in the Public Administration, Business Services, and Education Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Jobs will exist for biologists doing research into new drugs, biotechnology, environmental protection and new plant strains. Biotechnological research is one area of employment for biologists in industry and federal and provincial laboratories. The National Research Council is the largest employer of biotechnologists and defines the research activities as: 'the application of science and engineering to the direct or indirect use of cells from plants or animals or of micro-organisms, in their natural or modified forms, to the production of goods or the provision of services'. Most researchers have either their masters or doctoral degrees. Based on the Task Force on Human Resources for Biotechnology, there is a shift to interdisciplinary programs combining systems engineering with microbiology and other scientific specialties.

The shortage of adequately trained biotechnologists has forced recruitment from abroad. This process will likely continue but with some difficulty as global demand increases for these scientists.

At the 1981 Census, males represented a 7 to 3 majority in this occupational group. A relatively small proportion of this group was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

2135

Life Sciences Technologists and Technicians

Examples: Agricultural Technician
Bacteriology Technician
Seed Analyst
Soil Technologist
Forest Technologist
Forest Technician

Average salaries, full-time employed two years after graduation (1984):
Community college: $18,600 University: $22,500

Employment trends (000s) 1985: 9.9 1992: 11.0 Change: 1.1

Estimated attrition due to labour force withdrawals (000s) 1985-92: 0.9

Total requirements (000s): 2.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	35%	40%	Under 25 years:	39%	25%
Males:	65%	60%	Over 54 years:	4%	12%

Employment is expected to grow at the average rate, based on the outlook in the Public Administration, and Forestry, and Education Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Prospects appear to be bright in the area of quality control in agriculture and fisheries.

At the 1981 Census, males were the majority in this occupational group. A relatively small percentage of the group was older than 54, implying that increases in labour demand owing to age-retirement may not be large. The large proportion of young people is an indication that these occupations offer entry level employment for university and college graduates.

These occupations are currently facing unfavourable labour market conditions as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

For further information, contact:

Applied Science Technologists and Technicians of
British Columbia
200 Discovery Park
3700 Gilmore Way
Burnaby, B.C.
V5G 4M1
(604) 433-0548

2139

Occupations in Life Sciences, Not Elsewhere Classified

Examples: Ecologist
Forest Agrologist
Forest Pathologist
Naturalist

Employment trends (000s) 1985: 3.0	1992: 3.2	Change: 0.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.3
	Total requirements (000s):	0.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	20%	40%	Under 25 years:	29%	25%
Males:	80%	60%	Over 54 years:	6%	12%

Employment is expected to grow less than the average rate, based on the outlook in the Forestry and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Reforestation efforts could spur job opportunities in this occupation.

At the 1981 Census, males represented an 8 to 2 majority in this occupational group. A relatively small proportion of the group was older than 54, implying that increases in labour demand owing to age-retirement may not be large. The high percentage of young people is an indication that these occupations offer entry-level employment to university and college graduates.

For further information, contact:

Applied Science Technologists and Technicians of
British Columbia
200 Discovery Park
3700 Gilmore Way
Burnaby, B.C.
V5G 4M1
(604) 433-0548

2141

Architects

Examples: Building Architect
Landscape Architect
Marine Architect
Naval Architect

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $21,200

Employment trends (000s) 1985: 7.6	1992: 8.9	Change: 1.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.0
	Total requirements (000s):	2.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	8%	40%	Under 25 years:	4%	25%
Males:	92%	60%	Over 54 years:	12%	12%

Employment is expected to grow at the average rate, based on the outlook in the Business Services and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

There are a number of specialties in this occupational group. Among these are: building architects engaged in the design of residential and commercial structures; landscape architects who design private or public land service for recreation use; and marine/naval architects involved in shipbuilding, ship repair and offshore-related development equipment. As renovation activity becomes increasingly popular, architects' chances of employment may be best with smaller companies. Job prospects are more promising for those familiar with computer-aided design. Employment opportunities for naval/marine architects are few as the current demand for construction of new vessels is fairly flat.

At the 1981 Census, males were predominant in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand due to age-retirement may be moderate.

Chemical Engineers

Examples: Process Technology
Design and Development
Environmental Engineering
Heat Transfer/Energy Conversion

Employment trends (000s) 1985: 5.5	1992: 6.1	Change: 0.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	6%	40%	Under 25 years:	14%	25%
Males:	94%	60%	Over 54 years:	10%	12%

Engineering Bachelor's Degrees Conferred (1984)

Females:	20%
Males:	80%

Employment prospects in this group will depend on the outlook in the Industrial Chemicals, Business Services, Petroleum and Coal Products, Petroleum/Gas Wells/Incidental Mining Services and Chemical Products sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Among the factors that may increase demand is the expansion of chemical industries, the growing complexities of chemical processes that require new plant and equipment, the development of plastics and synthetic fibers required in consumer goods, and the expanding field of biotechnology.

During the 1985-1992 time period, the major demand for new engineering graduates will be to replace those in this group who voluntarily move into managerial or related occupations. The annual attrition rate of such withdrawals is estimated at about 10 per cent.

At the 1981 Census, this occupational group's workforce was concentrated in Ontario (47 per cent); Alberta (24 per cent); and, Quebec (15 per cent) and males were predominant. The proportion of females (6 per cent) reported in the 1981 Census is increasing. In this regard, a recent survey by the Canadian Council of Professional Engineers indicated that about 20 per cent of those conferred with engineering bachelor's degrees in 1984 were females.

In 1984, chemical engineers constituted about 11 per cent of the total number of university engineering graduates. It is expected that this particular specialty will experience a slightly faster-than-average employment growth for recent graduates or experienced engineers over the 1985-1992 time period.

For further information, contact:

Canadian Engineering Manpower Council
401-116 Albert Street
Ottawa, Ontario
K1P 5G3
(613) 232-2474

2143

Civil Engineers

Examples: Structural Design
Construction
Transportation
Municipal
Hydrology

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $29,000

Employment trends (000s) 1985: 29.2 1992: 33.3 Change: 4.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	3%	40%	Under 25 years:	6%	25%
Males:	97%	60%	Over 54 years:	11%	12%

Engineering Bachelor's Degrees Conferred (1984)
Females: 10%
Males: 90%

Employment is expected to grow at the average rate, based on the outlook in the Business Services, Public Administration and Construction sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The prospects for this group are linked to construction activity that in turn is determined by economic conditions. A growing population that may require the design of new suburbs and construction of transportation systems, as well as the growth of export markets for consulting services will be factors determining demand for this occupation group.

During the 1985-1992 period, the major requirement for new engineering graduates will be to replace those in this occupational group who voluntarily move into managerial or related occupations. The annual attrition rate of such withdrawals is estimated at about six per cent.

At the 1981 Census, the three largest provincial concentrations of this occupational group's workforce were in Ontario (35 per cent); Alberta (18 per cent); and Quebec (17 per cent) and males were predominant. The proportion of females (3 per cent) reported in the 1981 Census is increasing. A recent survey by the Canadian Council of Professional Engineers indicated that about 10 per cent of those conferred with engineering bachelor's degrees in 1984 were females.

In 1984, civil engineers made up about 16 per cent of all university engineering graduates. It is expected that this specialty will experience a balanced labour market situation for both recent graduates and experienced engineers over the 1985-1992 period.

For further information, contact:

Canadian Engineering Manpower Council
401-116 Albert Street
Ottawa, Ontario
K1P 5G3
(613) 232-2474

2144

Electrical Engineers

Examples: Electronics
Control Systems
Power and Distribution
Computers
Communication

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $31,000

Employment trends (000s) 1985: 26.0 1992: 29.5 Change: 3.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	3%	40%	Under 25 years:	6%	25%
Males:	97%	60%	Over 54 years:	11%	12%

Engineering Bachelor's Degrees Conferred (1984)
Females: 5%
Males: 95%

Employment is expected to grow at the average rate, based on the outlook in Electric Power, Business Services and Telephone and Telegraph sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The growing demand for microcomputer and telecommunication innovations could place those in this occupation group in an advantageous position.

During the 1985-1992 period, the major requirement for new engineering graduates will be to replace those in this occupational group who voluntarily move into managerial or related occupations. The annual attrition rate of such withdrawals is estimated at about 10 per cent.

At the 1981 Census, the three largest provincial concentrations of this group's workforce were in Ontario (49 per cent); Quebec (18 per cent); and British Columbia (10 per cent) respectively, and males were predominant. The proportion of females (three per cent) reported in the 1981 Census is increasing. A recent survey by the Canadian Council of Professional Engineers indicated that about five per cent of those receiving engineering bachelor's degrees in 1984 were females.

Despite overall high levels of unemployment currently affecting the Canadian economy, this occupation is facing labour market conditions that are among the most favorable as indicated by its lower-than-average U.I. claimant rate and higher than average hard-to-fill vacancy rate.

In 1984, electrical engineers represented about 25 per cent of all university engineering graduates. It is expected that this specialty will experience a strong demand for electronics engineers, primarily due to technological change. Also, the demand for electrical power engineers will be strongly influenced by the pace of development in the construction of new generating projects over the 1985-1992 period.

For further information, contact:

Canadian Engineering Manpower Council
401-116 Albert Street
Ottawa, Ontario
K1P 5G3
(613) 232-2474

Industrial Engineers

Examples: Manufacturing
Cost Economics
Plant Layout
Quality Assurance
Systems

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $27,700

Employment trends (000s) 1985: 15.9 1992: 17.8 Change: 1.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	6%	40%	Under 25 years:	5%	25%
Males:	94%	60%	Over 54 years:	9%	12%

Engineering Bachelor's Degrees Conferred (1984)
Females: 13%
Males: 87%

Employment prospects in this group will depend on the outlook in Business Services and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions.

In the 1970s, occupations in this group experienced an increase in their share of the workforce as a result of changes in technology and/or work organization. The increasing complexity of business operations, along with the growing popularity of automation, contributes to the bright prospects for industrial engineers. Also, the need for efficient organization of tasks may lead to good job opportunities for organization analysts.

During the 1985-1992 period, the major requirement for new engineering graduates will be to replace those in this occupational group who voluntarily move into managerial or related occupations. The annual attrition rate of such withdrawals is estimated at about eight per cent.

At the 1981 Census, the three largest provincial concentrations of this group's workforce were in Ontario (55 per cent); Quebec (23 per cent); and Alberta (eight per cent) and males were predominant. The proportion of females (six per cent) reported in the 1981 Census is increasing. A recent survey by the Canadian Council of Professional Engineers indicated that about 13 per cent of those conferred with engineering bachelor's degrees in 1984 were females.

In 1984, industrial engineers constituted about three per cent of all university engineering graduates. It is expected that this specialty will experience a balanced labour market situation for both recent graduates and experienced engineers over the 1985-1992 period.

For further information, contact:

Canadian Engineering Manpower Council
401-116 Albert Street
Ottawa, Ontario
K1P 5G3
(613) 232-2474

Mechanical Engineers

Examples: Plant and Machine Design
Heat Transfer/Energy Conversion/Thermodynamics
Automation

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $27,200

Employment trends (000s) 1985: 18.1 1992: 20.3 Change: 2.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	2%	40%	Under 25 years:	7%	25%
Males:	98%	60%	Over 54 years:	14%	12%

Engineering Bachelor's Degrees Conferred (1984)
Females: 6%
Males: 94%

Employment is expected to grow at the average rate, based on the outlook in a wide range of sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Mechanical engineers will be needed to assist with solutions to pollution problems such as acid rain and the disposal of harmful wastes as well to design machines and tools for increasingly complex manufacturing processes. A growing demand for efficient heating and ventilating systems in plants and buildings will also contribute to the need for these engineers.

During the 1985-1992 period, the major requirement for new engineering graduates will be to replace those in this occupational group who voluntarily move into managerial or related occupations. The annual attrition rate of such withdrawals is estimated at about nine per cent.

At the 1981 Census, the three largest provincial concentrations of this group's workforce were in Ontario (54 per cent); Quebec (16 per cent); and Alberta (11 per cent) and males were predominant. The proportion of females (two per cent) reported in the 1981 Census is increasing. A recent survey by the Canadian Council of Professional Engineers indicated that about six per cent of those conferred with engineering bachelor's degrees in 1984 were females.

In 1984, mechanical engineers comprised about 27 per cent of all university engineering graduates. It is expected that this specialty will experience a balanced labour market situation for both recent graduates and experienced engineers over the 1985-1992 period.

For further information, contact:

Canadian Engineering Manpower Council
401-116 Albert Street
Ottawa, Ontario
K1P 5G3
(613) 232-2474

2151

Metallurgical/Materials Engineers

Examples: Physical, Extractive and Process Metallurgy
Materials Science
Materials Handling

Employment trends (000s) 1985: 1.6	1992: 1.8	Change: 0.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	3%	40%	Under 25 years:	6%	25%
Males:	97%	60%	Over 54 years:	12%	12%

Engineering Bachelor's Degrees Conferred (1984)

Females:	12%
Males:	88%

Employment is expected to grow at the average rate, based on the outlook in Iron and Steel, Metal Mills and Business Services sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. The search for new metals and new uses for present ones will spur the growth in employment of extractive metallurgists. In the 1970s, occupations in this group experienced an increase in their share of the workforce as a result of changes in technology and/or work organization.

During the 1985-1992 period, the major demand for new engineering graduates will be to replace those in this occupational group who voluntarily move into managerial or related occupations. The annual attrition rate of such withdrawals is estimated at about 10 per cent.

At the 1981 Census, the three largest provincial concentrations of this group's workforce were in Ontario (49 per cent); Quebec (32 per cent); and British Columbia (seven per cent) and males were predominant. The proportion of females (three per cent) reported in the 1981 Census is increasing. A recent survey by the Canadian Council of Professional Engineers indicated that about 12 per cent of those receiving engineering bachelor's degrees in 1984 were females.

In 1984, metallurgical/materials engineers constituted about two per cent of all university engineering graduates. It is expected that this specialty will experience a balanced labour market situation for both recent graduates and experienced engineers over the 1985-1992 period.

For further information, contact:

Canadian Engineering Manpower Council
401-116 Albert Street
Ottawa, Ontario
K1P 5G3
(613) 232-2474

Mining Engineers

Examples: Mine Design/Construction (underground and surface)
Mineral Exploration
Extraction
Processing

Employment trends (000s)	1985: 2.8	1992: 3.2	Change: 0.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	3%	40%	Under 25 years:	6%	25%
Males:	97%	60%	Over 54 years:	15%	12%

Engineering Bachelor's Degrees Conferred (1984)

Females:	3%
Males:	97%

Employment is expected to grow at the average rate, based on the outlook in the Metal Mines, Business Services and Petroleum/Gas/Wells/ Incidental Mining Services sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Mining engineers will be required to meet a still-strong demand for coal; to develop technologically advanced efficient mining systems; to meet increasingly stringent mine safety standards; to recover low grade ores to replace already depleted current mineral deposits; to oversee a growing number of off-shore mining ventures; and to aid recovery of minerals from the sea.

During the 1985-1992 period, the major requirement for new engineering graduates will be to replace those in this occupational group who voluntarily move into managerial or related occupations. The annual attrition rate of such withdrawals is estimated at about nine per cent.

At the 1981 Census, the three largest provincial concentrations of this group's workforce were in Ontario (32 per cent); British Columbia (18 per cent); and Alberta (18 per cent) and males were predominant. According to the 1981 Census, about three per cent of this occupational group are females. A more recent survey by the Canadian Council of Professional Engineers, concerning those who were conferred with university engineering bachelor's degrees in 1984, also indicated a similar proportion. On the basis of 1985-1988 university engineering enrollment data, the percentage of females is forecast to increase between 5 per cent and 12 per cent.

In 1984, about two per cent of all university engineering graduates were mining engineers. It is expected that this engineering specialty will experience a balanced labour market situation for both recent graduates and experienced engineers over the 1985-1992 period.

For further information, contact:

Canadian Engineering Manpower Council
401-116 Albert Street
Ottawa, Ontario
K1P 5G3
(613) 232-2474

2154

Petroleum Engineers

Examples: Reservoir Engineering
Oil and Gas Recovery and Processing
Drilling and Rock Mechanics

Employment trends (000s)	1985: 4.4	1992: 4.9	Change:0.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	5%	40%	Under 25 years:	12%	25%
Males:	95%	60%	Over 54 years:	6%	12%

Engineering Bachelor's Degrees Conferred (1984)
Females: 13%
Males: 87%

Employment prospects in this group will depend on the outlook in Petroleum/Gas Wells/Incidental Mining Services and Business Services sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, occupations in this group experienced an increase in their share of the workforce as a result of changes in technology and/or work organization.

This occupation group will be increasingly in demand to design new methods for recovery of oil and gas in the Arctic and offshore, and to apply oil and gas mining techniques to the development of geothermal energy. Also, the fact that technology is aiding the recovery of additional oil and gas from existing wells will brighten the prospects for this occupational group.

During the 1985-1992 period, the major requirement for new engineering graduates will be to replace those in this occupational group who voluntarily move into managerial or related occupations. The annual attrition rate of such withdrawals is estimated at about 10 per cent.

At the 1981 Census, the three largest provincial concentrations of this group's workforce were in Alberta (82 per cent); Ontario (six per cent); and British Columbia (five per cent) and males were predominant. The proportion of females (five per cent) reported in the 1981 Census is increasing. A recent survey by the Canadian Council of Professional Engineers indicated that about 13 per cent of those conferred with engineering bachelor's degrees in 1984 were females.

In 1984, petroleum engineers were about one per cent of all university engineering graduates. It is expected that this specialty will experience a growth in the number of opportunities (as a result of increased activities in heavy oil and related industries), for both recent graduates and experienced engineers over the 1985-1992 period.

For further information, contact:

Canadian Engineering Manpower Council
401-116 Albert Street
Ottawa, Ontario
K1P 5G3
(613) 232-2474

2159

Other Professional Engineers, plus 2146 Agricultural Engineers, plus 2157 Community Planners.

Examples: Engineering Physics/Science
Agricultural and Forestry Engineering
Geological Engineering
Biological Engineering

Employment trends (000s) 1985: 13.4	1992: 15.4	Change: 2.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	11%	40%	Under 25 years:	7%	25%
Males:	89%	60%	Over 54 years:	13%	12%

Engineering Bachelor's Degrees Conferred (1984)
Females: 12%
Males: 88%

Employment prospects in this group will depend on the outlook in the Business Services and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The ever-present need for energy from oil and gas will help geological engineers. Also, new and advanced technologies should provide increased opportunities in the engineering physics/science field. Finally, the application of biotechnological research to agriculture should provide opportunities for agricultural engineers.

During the 1985-1992 period, the major requirement for new engineering graduates will be to replace those in this occupational group who voluntarily move into managerial or related occupations. The annual attrition rate of such withdrawals is estimated at about nine per cent.

At the 1981 Census, the three largest provincial concentrations of this group's workforce were in Ontario (38 per cent); Quebec (23 per cent); and Alberta (15 per cent) and males were predominant. The proportion of females (11 per cent) reported in the 1981 Census is increasing. A recent survey by the Canadian Council of Professional Engineers indicated that about 12 per cent of those conferred with engineering bachelor's degrees in 1984 were females.

Despite overall high levels of unemployment currently affecting the Canadian economy, these occupations are facing labour market conditions that are among the most favorable as indicated by their lower-than-average U.I. claimant rate and higher-than-average hard-to-fill vacancy rate.

In 1984, Other Professional Engineers (CCDO 2159) constituted about 14 per cent of all university engineering graduates. It is expected that these specialties will experience substantial demands (in areas of emerging technology, e.g. biological/biomedical engineers), for both recent graduates and experienced engineers over the 1985-1992 period.

For further information, contact:

Canadian Engineering Manpower Council
401-116 Albert Street
Ottawa, Ontario
K1P 5G3
(613) 232-2474

2161

Surveyors

Examples: Marine Surveyor
Pipe-line Surveyor
Topographic Surveyor

Average salaries, full-time employed two years after graduation (1984):
Community college: $18,600 University: $22,700

Employment trends (000s)	1985: 16.3	1992: 18.7	Change: 2.4
Estimated attrition due to labour force withdrawals (000s)			1985-92: 1.0
		Total requirements (000s):	3.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	5%	40%	Under 25 years:	36%	25%
Males:	95%	60%	Over 54 years:	4%	12%

Employment is expected to grow at the average rate, based on the outlook in the Business Services, Public Administration and Construction sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions.

Technological innovations using satellites to map inaccessible areas have benefited surveyors. However, this occupational group is highly sensitive to construction activity that follows the demand for structures, the cycles of investments and the increased demand for capital goods. In addition, the aerial survey sector, specifically mapping, is highly sensitive to the economic environment and technological change. The transition from analogue to digital methods has been both costly and difficult for this profession.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively low proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

These occupations are currently facing labour market conditions that are not very favorable as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

For further information, contact:

Canadian Association of Aerial Surveyors
46 Elgin Street, Suite 33
Ottawa, Ontario
K1P 5K6
(613) 232-8770

2163

Draughting Occupations

Examples: Aeronautical Draughter
Architectural Draughter
Cartographic Draughter
Electronic Draughter
Engineering Draughter
Mechanical Draughter

Average salaries, full-time employed two years after graduation (1984):
Community college: $18,100 University: N/A

Employment trends (000s) 1985: 40.9 1992: 46.6 Change: 5.7

Estimated attrition due to labour force withdrawals (000s) 1985-92: 3.8

Total requirements (000s): 9.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	18%	40%	Under 25 years:	26%	25%
Males:	82%	60%	Over 54 years:	6%	12%

Employment is expected to grow at the average rate, based on the outlook in the Business Services and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions.

The conceptualization and design of new products have been revolutionized by computer-assisted design. State-of-the-art systems provide three-dimensional visualization and facilitate the conceptualizing of complex shapes and machine assemblies (CAD). The tendency is toward the gradual integration of these systems with the programming of automated machine-tools (computer-assisted manufacturing and design - CAD/CAM) and management function.

New technology has eliminated repetitive tasks such as correcting and altering drawings, ancillary work such as filing and copying and working drawings. As a result, this occupational group is producing the required new skills.

The widespread use of computer-aided design will counteract much of the new demand for draughters brought about by increasingly complex products and processes. However, prospects are better for those who are more highly qualified and skilled and familar with computer systems.

At the 1981 Census, males were predominant in this occupational group. A relatively low proportion was older than 54, implying that the increases in labour demand owing to age-retirement may not be large. The large proportion of young people in the occupation suggests that this is an occupation that offers entry-level employment to graduates from colleges.

2165

Engineering Technologists and Technicians, plus
2164 Architectural Technologists and Technicians

Examples: Electrical Technician
Electronic Technician
Quality Control Technician
Die Designer

Average salaries, full-time employed two years after graduation (1984):
Community college: $20,000 University: $23,400

Employment trends (000s) 1985: 45.7	1992: 51.7	Change: 6.0
Estimated attrition due to labour force withdrawals (000s)		1985-92: 3.5
	Total requirements (000s):	9.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	8%	40%	Under 25 years:	29%	25%
Males:	92%	60%	Over 54 years:	6%	12%

Employment is expected to grow at the average rate, based on the outlook in a wide range of sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The widespread application of technology and miniaturization in the office (personal computers) in the home (thermostats) and on the shop floor will benefit this occupational group, particularly in the electrical, electronic, industrial and mechanical engineering disciplines.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively low proportion was older than 54, implying that the increases in labour demand owing to age-retirement may not be large. The large number of young people in these occupations suggests it is a source of entry for graduates of technical and community colleges.

2181

Mathematicians, Statisticians and Actuaries

Examples: Insurance Company Actuary
Sampling Expert
Demographer
Time-Study Statistician
Consulting Actuary
Casualty Actuary

Employment trends (000s) 1985: 5.6	1992: 6.4	Change: 0.8
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.7
	Total requirements (000s):	1.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	32%	40%	Under 25 years:	10%	25%
Males:	68%	60%	Over 54 years:	9%	12%

Employment is expected to grow at the average rate, based on the outlook in the Public Administration, Finance and Business Services sectors, where these occupations are concentrated. Reflecting the employment patterns of these sectors, the occupation may be moderately sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Knowledge of computer science will be necessary for new entrants in this occupational group. With growing demands for sophisticated pension and insurance information, the need for actuaries could increase much faster than the average rate.

At the 1981 Census, males represented a majority in this occupational group. In addition, a below-average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may not be large.

The geographical distribution for these occupations are also a factor to be taken into consideration. Over half (51.1 per cent) of its workforce was located in Ontario at the time of the 1981 Census.

These occupations are currently facing favourable labour market conditions as indicated by their lower-than-average U.I. claimant rate and higher-than- average hard-to-fill vacancy rate.

For further information, contact:

Canadian Institute of Actuaries
275 Slater Street, Suite 1505
Ottawa, Ontario
K1P 5H9
(613) 236-8196

The Economists' Sociologists' and Statisticians' Association
200 Cooper Street, Suite 9
Ottawa, Ontario
K2P 0G1
(613) 236-9181

Systems Analysts, Computer Programmers and Related Occupations

Examples: Accounting-Methods Analyst
Simulation Systems Analyst
Software Systems Programmer

Average salaries, full-time employed two years after graduation (1984):
Community college: $22,100 University: $27,500

Employment trends (000s) 1985: 59.7	1992: 67.3	Change: 7.6
Estimated attrition due to labour force withdrawals (000s)		1985-92: 4.2
	Total requirements (000s):	11.8

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	29%	40%	Under 25 years:	20%	25%
Males:	71%	60%	Over 54 years:	2%	12%

Employment is expected to grow faster than the average rate, based on the outlook in the Business Services, Public Administration and Finance sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions.

In the 1970s, occupations in this group experienced an increase in their share of the workforce as a result of changes in technology and/or work organization. Prospects remain bright as computers, robots and numerically controlled tools continue to spread throughout industry and in the office. The information industry will continue to lead to openings in such related occupations as database manager, information systems engineer and information scientist.

Based on occupational specific research, this professional group has experienced a two-year lag because it is tied to capital-intensive investment and to global economic conditions. As companies purchase more sophisticated computer technology, job responsibilities are changing to encompass knowledge of data processing where only some familiarity was previously required. Those systems analysts who are employed in the private sector are now finding it necessary to have more managerial skills and to be more familiar with company organization and business objectives. Therefore, as work organization and technology continue to change, future demand for this occupation could be higher than projected here. However, the availability of easier-to-use computers suggests that the needs will be greater for software designers and less for lower-skilled programmers.

At the 1981 Census, males represented a majority in this occupational group. In addition, a relatively low proportion was older than 54, foreshadowing that increases in labour demand owing to age-retirement may not be large.

For further information, contact:

Data Processing Management Association
1501 Carling Avenue, Suite L8
Ottawa, Ontario
K1Z 7M1
(613) 728-1962

Occupations in Mathematics, Statistics, Systems Analysis and Related Fields, Not Elsewhere Classified

Example: Statistical Technician

Employment trends (000s) 1985: 1.0		1992: 1.2 Change:	0.2
Estimated attrition due to labour force withdrawals (000s)			1985-92: 0.1
		Total requirements (000s):	0.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	47%	40%	Under 25 years:	55%	25%
Males:	53%	60%	Over 54 years:	3%	12%

Employment is expected to grow at a faster-than-average rate, based on the outlook in the Public Administration, Business Services and Finance sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions.

In the 1970s, occupations in this group have experienced an increase in their share of the workforce as a result of changes in technology and/or work organization. Employment opportunities are better for those who are familiar with computer systems.

At the 1981 Census, females and males were almost evenly distributed in this occupational group. In addition, a relatively low proportion was older than 54, indicating that increases in labour demand owing to age-retirement may not be large. The high proportion of young people in the occupation reflects the likelihood that this an occupation offering entry level employment to graduates from university and colleges.

The geographical distribution for this occupation is also a factor to be taken into consideration. Over half (50.3%) of its workforce was in Ontario at the time of the 1981 Census.

2311

Economists

Examples: Agricultural Economist
Development Economist
Economic Adviser
Forest Economist
Labour Economist

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $26,200

Employment trends (000s) 1985: 12.0	1992: 13.6	Change: 1.6
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.5
	Total requirements (000s):	3.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	20%	40%	Under 25 years:	6%	25%
Males:	80%	60%	Over 54 years:	10%	12%

Employment is expected to grow at the average rate, based on the outlook in the Public Administration and Business Services sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Economists with a strong quantitative background should enjoy employment opportunities in business firms, research organizations, banks, and, to a limited extent, government. All of these institutions seek to forecast and analyze trends in an increasingly complex domestic and international economic environment. The continuing search for depletable resources should benefit mineral economists.

At the 1981 Census, males were predominant in this occupational group. A slightly below-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

For further information, contact:

The Economists' Sociologists' and Statisticians' Association
200 Cooper Street, Suite 9
Ottawa, Ontario
K2P 0G1
(613) 236-9181

2313

Sociologists, Anthropologists and Related Social Scientists

Examples: Anthropologist
Criminologist
Social Ecologist

Employment trends (000s) 1985: 1.3	1992: 1.5	Change: 0.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.1
	Total requirements (000s):	0.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	38%	40%	Under 25 years:	14%	25%
Males:	62%	60%	Over 54 years:	3%	12%

Employment is expected to grow at the average rate, based on the outlook in the Public Administration, Education Services and Business Services sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may not be particularly sensitive to changing economic conditions.

In the 1970s, occupations in this group experienced an increase in their share of the workforce as a result of changes in technology and/or work organization. Prospects are better for sociologists with a quantitative background and training in applied fields such as crime and deviance, sex roles and demography. The occupations in this group will depend to some extent on social programs and, with overall fiscal constraints, employment opportunities could be somewhat limited in the Public Administration sector.

At the 1981 Census, males represented a majority in this occupational group. A relatively low proportion of the group was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

The geographical distribution for these occupations is also a factor to be taken into consideration. Over half (53.0%) of their workforce was located in Quebec at the time of the 1981 Census.

These occupations are currently facing labour market conditions that are among the least favorable as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

2315

Psychologists

Examples: Child Development Consultant
Clinical Psychologist
Industrial Psychologist
Educational Psychologist

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $30,600

Employment trends (000s) 1985: 8.8 1992: 10.0 Change: 1.2

Estimated attrition due to labour force withdrawals (000s) 1985-92: 1.1

Total requirements (000s): 2.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	52%	40%	Under 25 years:	5%	25%
Males:	48%	60%	Over 54 years:	6%	12%

Employment is expected to grow at the average rate, based on the outlook in the Education Services, Health/Welfare and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may not be particularly sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Psychologists who have a clinical specialization should enjoy good employment opportunities as the maintenance of good mental health becomes an important issue. Counselling and industrial psychology also become important fields in an increasingly complex society.

At the 1981 Census, females and males were almost evenly distributed in this occupational group. A relatively low proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

These occupations are currently facing favorable labour market conditions as indicated by their lower-than-average U.I. claimant rate and higher than average hard-to-fill vacancy rate.

2331

Social Workers

Examples: Case Supervisor
Counsellor
Welfare Case Worker
Family Counsellor

Average salaries, full-time employed two years after graduation (1984):
Community college: $18,500 University: $24,800

Employment trends (000s) 1985: 32.9 1992: 38.3 Change: 5.4

Estimated attrition due to labour force withdrawals (000s) 1985-92: 5.2

Total requirements (000s): 10.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	63%	40%	Under 25 years:	6%	25%
Males:	37%	60%	Over 54 years:	8%	12%

Employment is expected to grow at the average rate, based on the outlook in the Health/Welfare Institutions and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may not be particularly sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Social workers are employed to counsel patients, conduct research, administer social programs, and assist vocational and education counsellors. They may also work as part of a team in the overall administration of social programs. Volunteer work is one way of attaining marketable skills to pursue a career in this field as competition is extremely keen. These occupations will depend to some extent on social programs and, with overall fiscal constraints, employment opportunities will be somewhat limited in the Public Administration and Health and Welfare sectors.

At the 1981 Census, females represented a majority in this occupational group. In addition, a below-average proportion of the group was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

For further information, contact:

Canadian Association of Schools of Social Work
151 Slater Street, Suite 909
Ottawa, Ontario
K1P 5H4
(613) 563-1217

2333

Occupations in Welfare and Community Services

Examples: Community Service Worker
Recreation Leader
Youth Club Supervisor
Child Welfare Worker

Average salaries, full-time employed two years after graduation (1984):
Community college: $15,300 University: $19,100

Employment trends (000s) 1985: 44.6 1992: 52.8 Change: 8.2

Estimated attrition due to labour force withdrawals (000s) 1985-92: 8.9

Total requirements (000s): 17.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	69%	40%	Under 25 years:	33%	25%
Males:	31%	60%	Over 54 years:	11%	12%

Employment is expected to grow at the average rate, based on the outlook in the Health/Welfare Institutions, Public Administration and Miscellaneous Services sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Volunteer programs provide one way for young people to gain marketable skills to be social workers. These programs also allow people to donate their time and talents and concurrently they gain managerial and leadership skills while involved in community activities. The prospects of camp counsellors/directors, and community service workers are bright in light of the continuing trend of mothers working outside the home.

At the 1981 Census, females represented a 7 to 3 majority in this occupational group. In addition, an average proportion of this group was older than 54, indicating that increases in labour demand owing to age-retirement may be moderate.

2343

Lawyers and Notaries

Examples: Barrister
Solicitor

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $27,900

Employment trends (000s) 1985: 34.5 1992: 40.4 Change: 5.9

Estimated attrition due to labour force withdrawals (000s) 1985-92: 4.8

Total requirements (000s): 10.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	15%	40%	Under 25 years:	3%	25%
Males:	85%	60%	Over 54 years:	9%	12%

Employment prospects for this group will depend on the outlook in the Business Services and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Lawyers are engaged in private practice and specialize in such fields as civil litigation, corporate law, common law, taxation, family law, labour relations law, patents and trademarks, real estate transactions, estate planning etc. They may also be engaged in a general practice. Barristers and/or solicitors may be engaged in practice as an employee at a public agency e.g. city solicitor, crown attorney, or a business firm. Employment prospects for lawyers may increase as corporations seek to patent a growing number of technological innovations. There is a need to sift through increasingly complex business regulations as society seeks to define their rights under family law and the new constitution and as consumers seek to protect themselves.

Notaries are involved in drawing up contracts, mortgages, deeds, wills and other legal documents. They also certify and acknowledge the validity of signatures and dates on documents. Notaries take affidavits and depositions for use before courts and they administer oaths.

At the 1981 Census, males were predominant in this occupational group. A below-average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may not be large.

2351

Librarians, Archivists and Conservators
Examples: Bibliographer
Cataloguer
Film Librarian
Hospital Librarian
Music Librarian
Records Librarian

Average salaries, full-time employed two years after graduation (1984):
Community college: $13,200 University: $22,900

Employment trends (000s)	1985: 15.6	1992: 16.9	Change: 1.9
Estimated attrition due to labour force withdrawals (000s)			1985-92: 3.9
		Total requirements (000s):	5.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	80%	40%	Under 25 years:	4%	25%
Males:	20%	60%	Over 54 years:	16%	12%

Employment is expected to grow less than the average rate, based on the outlook in the Education Services and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may not be particularly sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Prospects are better for those specializing in scientific and technical fields, particularly in research libraries. Knowledge of computerized information/index systems is considered especially advantageous in all types of libraries. Chances for employment have been curtailed somewhat in public and educational institutions by government budgetary restraints.

This occupational group is made up of three distinct specialties each requiring different qualifications, skills and labour market conditions. Archivists work mainly with unpublished materials in both the private and public sectors. Employment prospects are better than those of librarians.

Conservators are highly specialized, being engaged in the physcial conservation of documents. Employment opportunities are best within this occupational group as there are few qualified persons to fill the positions.

Librarians work with published materials in all formats from print to videotape or computer files in libraries in both the private and public sectors. They can also be employed in commercial information services that publish materials. Employment prospects at the present time are not favourable.

At the 1981 Census, females were predominant in this occupational group. In addition, a relatively large proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be large.

For further information, contact:

Canadian Library Association
151 Sparks Street
Ottawa, Ontario
K1P 5E3
(613) 232-9625

2353

Technicians in Library, Museum and Archival Sciences
Examples: Artifact and Fossil Restorer
Taxidermist
Document Restorer
Anthropology Technician
Paintings Restorer

Employment trends (000s) 1985: 3.6	1992: 3.9	Change: 0.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.6
	Total requirements (000s):	0.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	68%	40%	Under 25 years:	22%	25%
Males:	32%	60%	Over 54 years:	10%	12%

Employment is expected to grow at the average rate, based on the outlook in the Education Services, Public Administration and Miscellaneous Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may not be particularly sensitive to changing economic conditions. In the 1970s, occupations in this group experienced an increase in their share of the workforce in the industries where they are primarily employed as a result of changes in technology and/or work organization. This occupational group are paraprofessionals who work mainly in libraries. The proliferation of computerized library systems that catalogue publications and control circulation may increase job opportunities for technicians. With reduced public sector expenditures, however, occupational demand may be reduced.

At the 1981 Census, females represented a 7 to 3 majority in this occupational group. An about-average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

The geographical distribution of these occupations are also a factor to be taken into consideration. Over half (54.7%) of its workforce was located in Quebec at the time of the 1981 Census.

2391

Educational and Vocational Counsellors
Examples: Educational Adviser
Group Development Worker
Vocational Counsellor

Average salaries, full-time employed two years after graduation (1984):
Community college: $16,300 University: $25,500

Employment trends (000s) 1985: 5.8	1992: 6.2	Change: 0.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.8
	Total requirements (000s):	1.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	48%	40%	Under 25 years:	6%	25%
Males:	52%	60%	Over 54 years:	9%	12%

Employment is expected to grow at less than the average rate, based on the outlook in the Education Services and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may not be particularly sensitive to changing economic conditions.

Educational and vocational counsellors engage in helping individuals with career development, educational, social and personal decisions. The occupations in this group will depend on school enrolment as most counsellors are employed in advising students, particularly those in secondary schools. As ongoing education increases among the 25-50 age group, so too will the demand for counsellors in colleges and universities. With a tight and complex labour market, students making career decisions will likely need more guidance from this group, although with overall fiscal constraints employment opportunities will be somewhat limited.

At the 1981 Census, females and males were almost evenly distributed in this occupational group. In addition, a below-average proportion was older than 54, indicating that increases in labour demand due to age-retirement may not be large.

These occupations are currently facing unfavorable labour market conditions as indicated by a higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

2711

University Teachers

Examples: Lecturer
Professor
Tutor, Universities

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $27,500

Employment trends (000s) 1985: 35.1	1992: 31.8	Change: –3.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 4.9
	Total requirements (000s):	1.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	24%	40%	Under 25 years:	3%	25%
Males:	76%	60%	Over 54 years:	13%	12%

Employment is expected to decline till the mid-90s, based on the outlook in the Education Services sector where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may not be particularly sensitive to changing economic conditions.

Based on source population trends, decline is expected. If adult education, paid educational leave or general interest courses continue to grow among the 25-50 age group, the employment decline may be partly offset. The continuing increase in research grants and the flow of foreign students in both graduate and undergraduate programs are significant factors contributing to demand in this occupational group.

At the 1981 Census, males were predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

Elementary and Kindergarten Teachers

Examples: Classroom Teacher
In-School Administrator

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $24,400

Employment trends (000s) 1985: 170.0	1992: 177.4	Change: 7.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 22.9
	Total requirements (000s):	30.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	80%	40%	Under 25 years:	7%	25%
Males:	20%	60%	Over 54 years:	5%	12%

Employment is expected to grow at less than the average rate, based on the outlook in the Education Services sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may not be particularly sensitive to changing economic conditions. By the mid-80s, increasing enrolment should lead to an increase in demand for this group of teachers, although most vacancies may be filled from the lists of surplus teachers. Teachers applying to another jurisdiction and new entrants should note that where layoffs have occurred the laid-off teachers are given priority over new applicants if other positions become available. Some openings may be created by increases in junior kindergartens.

Teachers are provincially certified and interprovincial mobility is somewhat restricted. The great majority of elementary and kindergarten teachers teach or supervise a grade or grades from K through 8 depending on the province or territory. Teachers tend to be generalists at this level. There is growing demand for specialists to teach French as a second language outside of Quebec. Growth in programs to help the educationally handicapped is also contributing to demand for special needs teachers. Some provincial associations have reported shortages: Alberta (vocational educational and some specializations), Manitoba (French immersion, special education and music), New Brunswick (French immersion, French second language, special education), Prince Edward Island (French immersion), Newfoundland (music, speech pathology), Northwest Territories (family life).

At the 1981 Census, females were predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that the increases in labour demand owing to age-retirement may not be large.

For further information, contact:

Canadian Teachers Federation
110 Argyle Street
Ottawa, Ontario
K2P 1B4
(613) 232-1506

Canadian School Trustees' Association
1140 Morrison Drive, Suite 220
Ottawa, Ontario
K2H 8S9
(613) 829-9108

2733

Secondary School Teachers

Examples: Classroom Teacher
In-School Administrator

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $27,200

Employment trends (000s) 1985: 130.5	1992: 124.1	Change: –6.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 14.9
	Total requirements (000s):	20.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	42%	40%	Under 25 years:	3%	25%
Males:	58%	60%	Over 54 years:	7%	12%

Employment is expected to decline, based on the outlook in Education Services sector where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may not be particularly sensitive to changing economic conditions. Declining enrolment should translate into keen competition for jobs at this level, although by 1990 this situation should reverse itself, as babies of the 70s begin to enter high school.

Teachers are provincially certified and interprovincial mobility is somewhat restricted. Most secondary school educators teach or supervise a grade or grades from 9 through 13 depending on the province or territory. Many secondary teachers have teaching specialties such as arts, science or mathematics.

Teachers applying to other jurisdictions and prospective entrants should note that where layoffs have occurred the laid-off teachers are given priority over new applicants if other positions become available. However, growing demand for French-language instruction outside Quebec will boost those teachers having this specialty and opportunities should arise throughout the country.

At the 1981 Census, males represented a majority in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

For further information, contact:

Canadian Teachers Federation
110 Argyle Street
Ottawa, Ontario
K2P 1B4
(613) 232-1506

Canadian School Trustees' Association
1140 Morrison Drive, Suite 220
Ottawa, Ontario
K2H 8S9
(613) 829-9108

2739

Elementary and Secondary School Teaching and Related Occupations, Not Elsewhere Classified

Examples: Audio-Visual Aid Director
Teaching Consultant

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $22,300

Employment trends (000s)	1985: 29.5	1992: 30.1	Change: 0.6
Estimated attrition due to labour force withdrawals (000s)			1985-92: 4.9
		Total requirements (000s):	6.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	81%	40%	Under 25 years:	12%	25%
Males:	19%	60%	Over 54 years:	8%	12%

Employment is expected to grow less than the average rate, based on the outlook in the Education Services sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may not be particularly sensitive to changing economic conditions.

Pupil enrolment in both secondary and elementary schools will affect employment opportunities for these teachers. Elementary enrolment is expected to increase in the mid-80s, with similar developments occurring at the secondary level in their 90s. Increasing demand for French-language instruction outside of Quebec will likely mean that those with this specialty will be better able to market themselves and find employment.

At the 1981 Census, females were predominant in this occupational group. In addition, a below-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

For further information, contact:

Canadian School Trustees' Association
1140 Morrison Drive, Suite 220
Ottawa, Ontario
K2H 8S9
(613) 829-9108

Canadian Teachers Federation
110 Argyle Street
Ottawa, Ontario
K2P 1B4
(613) 232-1506

2791

Community College and Vocational School Teachers

Examples: Barber College and Beauty School Teacher
Business College Instructor
Commercial Art Teacher
Trade School Instructor
Welding Instructor
Vocational School Instructor

Employment trends (000s) 1985: 30.1	1992: 26.1	Change: –4.0
Estimated attrition due to labour force withdrawals (000s)		1985-92: 4.0
	Total requirements (000s):	5.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	39%	40%	Under 25 years:	3%	25%
Males:	61%	60%	Over 54 years:	10%	12%

Employment is expected to decline, based on the outlook in the Education Services sector where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may not be particularly sensitive to changing economic conditions. The growth in technical training and retraining resulting from technological changes in several fields should boost job opportunities for some of these teachers. Community colleges are emerging as leaders in coping with retraining demands.

Based on source population trends, a decline is expected. But if recurrent education, paid education leave, or general interest courses continue to grow among the 25-50 age group, the employment decline might be partly offset.

At the 1981 Census, males represented a majority in this occupational group. In addition, an about-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

For further information, contact:

Canadian School Trustees' Association
1140 Morrison Drive, Suite 220
Ottawa, Ontario
K2H 8S9
(613) 829-9108

Fine Arts Teachers, Not Elsewhere Classified

Examples: Art Instructor
Dancing Professor
Music Professor
Singing Teacher
Drama Instructor

Employment trends (000s) 1985: 18.3	1992: 19.8	Change: 1.5
Estimated attrition due to labour force withdrawals (000s)		1985-92: 4.4
	Total requirements (000s):	5.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	72%	40%	Under 25 years:	18%	25%
Males:	28%	60%	Over 54 years:	16%	12%

Employment is expected to grow at less than the average rate, based on the outlook in the Education Services sector where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Possible growing interest in the arts, brought on by increased leisure time, may contribute to some job opportunities in this occupational group.

At the 1981 Census, females represented a majority in this occupational group. In addition, a relatively large proportion was older than 54, implying that increases in labour demand owing to age-retirement may be large.

For further information, contact:

Canadian School Trustees' Association
1140 Morrison Drive, Suite 220
Ottawa, Ontario
K2H 8S9
(613) 829-9108

2795

Teachers of Exceptional Students, Not Elsewhere Classified

Examples: Instructor of the Blind
Remedial Teacher
Educational Therapist
Special Education Teacher
Teacher of Disabled Persons

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $22,500

Employment trends (000s) 1985: 20.4 1992: 22.4 Change: 2.0

Estimated attrition due to labour force withdrawals (000s) 1985-92: 3.1

Total requirements (000s): 5.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	71%	40%	Under 25 years:	19%	25%
Males:	29%	60%	Over 54 years:	5%	12%

Employment is expected to grow at the average rate, based on the outlook in the Education Services sector where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may not be particularly sensitive to changing economic conditions. Society's growing acceptance and awareness of physically and mentally disabled persons may contribute to good job prospects for this group.

The growth rate of this group of teachers between 1971 and 1981 was one of the highest among teaching specialties. Employment increased a substantial 14 per cent as a result of the growing acceptance and awareness of physically and mentally disabled people. Employment prospects have been better for this group with special qualifications but only to the extent that funding of these special programs has not been reduced. Teachers applying to another jurisdiction and prospective entrants should note that where layoffs have occurred the laid-off teachers are given priority over new applicants if other positions become available.

At the 1981 Census, females represented a 7 to 3 majority in this occupational group. A relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

3111

Physicians and Surgeons

Examples: General Practitioner
Cancer Specialist
Allergist
Dermatologist
Gynaecologist
Forensic Medicine Specialist
Heart Specialist
Geriatrist
Psychiatrist
Pediatrician

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $38,900

Employment trends (000s) 1985: 44.4	1992: 49.1	Change: 4.7
Estimated attrition due to labour force withdrawals (000s)		1985-92: 9.4
	Total requirements (000s):	14.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	17%	40%	Under 25 years:	3%	25%
Males:	83%	60%	Over 54 years:	19%	12%

Employment is expected to grow at the average rate, based on the outlook in the Physicians' Offices, and Health/Welfare sectors where the occupation is concentrated. Reflecting the employment patterns of these sectors, the occupation may be particularly sensitive to government expenditure policies which in turn may be sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The population/physician ratio is not expected to change but the demand for specific fields of practice may increase while others will decrease. The growth of the elderly segment of the population will require a greater number of specialists. Medical advances that are preserving and prolonging life will have a multiplicative effect on the demand for doctors. This demand may be counterbalanced by the introduction of more sophisticated diagnostic technologies as well as new procedures, drugs and devices to treat patients.

At the 1981 Census, males were predominant in this occupational group. A relatively large proportion was older than 54, implying that increases in labour demand owing to age-retirement may be large.

For further information, contact:

Canadian Hospital Association
Research Department
17 York Street
Ottawa, Ontario
K1N 9J6
(613) 238-8005

3113

Dentists

Examples: Dental Surgeon
Oral Surgeon
Endodontist
Orthodontist
Periodontist

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A
University: $58,700

Employment trends (000s) 1985: 11.3 1992: 12.2 Change: 0.9

Estimated attrition due to labour force withdrawals (000s) 1985-92: 2.0

Total requirements (000s): 2.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	8%	40%	Under 25 years:	3%	25%
Males:	92%	60%	Over 54 years:	18%	12%

Employment is expected to grow faster than the average rate, based on the outlook in Dentists Offices where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may be moderately sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. An expanding population, an increasing number of dental plans and a need for regular dental care will create employment opportunities.

Some openings, however, will be eliminated by advanced dental technology and research that is doing away with tooth decay. Still, changes in the pattern of delivery of dental care and increased public awareness of the importance of dental health may open up additional opportunities.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively large proportion was older than 54, implying that increases in labour demand owing to age-retirement may be large.

For further information, contact:

Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6
(613) 523-1770

3115

Veterinarians

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $26,100

Employment trends (000s) 1985: 3.5	1992: 3.8	Change: 0.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.4
	Total requirements (000s):	0.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	16%	40%	Under 25 years:	6%	25%
Males:	84%	60%	Over 54 years:	11%	12%

Employment is expected to grow less than the average rate, based on the outlook in the Agriculture, and Public Administration sectors where the occupation is concentrated. Reflecting the employment patterns of these sectors, the occupation may not be particularly sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Growth in the pet population as well as emphasis on scientific methods of raising livestock may lead to some job openings for veterinarians. Specialization in animal toxology and pathology may increase opportunities, which mainly exist with already-established veterinarian practices. Many veterinarians are employed in the food processing and inspection sector.

At the 1981 Census, males were the majority in this occupational group. However, the female representation is increasing as indicated by recent enrolment data in veterinarian faculties (up to 50 per cent in some institutions). An average proportion in 1981 was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

This occupation is facing labour market conditions that are among the most favorable as indicated by its lower-than-average U.I. claimant rate and higher-than-average hard-to-fill vacancy rate.

For further information, contact:

Agriculture Canada
Farm Input Section
Sir John Carling Building
930 Carling Avenue
Ottawa, Ontario
K1A 0C5
(613) 995-9554

Osteopaths and Chiropractors

Employment trends (000s) 1985: 2.4	1992: 2.8	Change: 0.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.6
	Total requirements (000s):	1.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	13%	40%	Under 25 years:	3%	25%
Males:	87%	60%	Over 54 years:	17%	12%

Employment is expected to grow at the average rate, based on the outlook in the Health/Welfare Institutions sector where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may not be particularly sensitive to changing economic conditions.

In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The growing demand for alternate methods of medical treatment may brighten the employment outlook for these occupations.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively large proportion was older than 54, implying that increases in labour demand owing to age-retirement may be large.

For further information, contact:

Canadian Hospital Association
Research Department
17 York Street
Ottawa, Ontario
K1N 9J6
(613) 238-8005

3119

Health Diagnosing and Treating Occupations, Not Elsewhere Classified

Examples: Logopedist
Mental Health Consultant
Naturopathic Physician
Podiatrist
Pediculist

Employment trends (000s) 1985: 3.8	1992: 4.4	Change: 0.6
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.8
	Total requirements (000s):	1.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	55%	40%	Under 25 years:	13%	25%
Males:	45%	60%	Over 54 years:	14%	12%

Employment is expected to grow at faster than the average rate, based on the outlook in the Health/Welfare Institutions sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions or to government's expenditure policies.

In the 1970s, occupations in this group experienced an increase in their share of the workforce in the industries where they are primarily employed as a result of changes in technology and/or work organization. Some of these occupations may experience an increase in demand for their services as a growing awareness of good health and physical condition prompts physical activities that may contribute to injuries or conditions requiring treatments.

At the 1981 Census, females and males were almost evenly distributed in this occupational group. An about-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

For further information, contact:

Canadian Hospital Association
Research Department
17 York Street
Ottawa, Ontario
K1N 9J6
(613) 238-8005

3131

Nurses, Registered, Graduate and Nurses-in-Training

Examples: Graduate Nurse
Nurse Consultant
Physical Therapy Nurse
School Nurse
Occupational Health Nurse

Average salaries, full-time employed two years after graduation (1984):
Community college: $23,200 University: $25,400

Employment trends (000s) 1985: 193.6	1992: 225.8	Change: 32.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 32.7
	Total requirements (000s):	64.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	95%	40%	Under 25 years:	15%	25%
Males:	5%	60%	Over 54 years:	7%	12%

Employment is expected to grow at an average rate, based on the outlook in the Health/Welfare Institutions sector where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may be particularly sensitive to government expenditure policies. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The demand for health care personnel to provide services for geriatric, chronic and long-term care will increase as the population ages. The trend toward services outside acute care hospitals (clinics, rehabilitation and chronic centres, aging homes) is likely to create some opportunities. The development of new medical techniques, drugs, devices and procedures — together with a trend giving more responsibilities to nurses in monitoring and diagnosing changes in patients — are likely to lead to demands for personnel with higher education levels.

Shortages exist at the moment in hospital specialties of intensive care, cardiology, geriatrics, psychiatry and emergency and in institutions located in remote areas.

At the 1981 Census, females were predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

For further information, contact:

Canadian Hospital Association
Research Department
17 York Street
Ottawa, Ontario
K1N 9J6
(613) 238-8005

Canadian Nurses Association
50 The Driveway
Ottawa, Ontario
K2P 1E2
(613) 237-2133

3134

Registered Nursing Assistants

Average salaries, full-time employed two years after graduation (1984):
Community college: $19,900 University: N/A

Employment trends (000s) 1985: 51.4 1992: 60.1 Change: 8.7

Estimated attrition due to labour force withdrawals (000s) 1985-92: 8.5

Total requirements (000s): 17.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	91%	40%	Under 25 years:	4%	25%
Males:	9%	60%	Over 54 years:	12%	12%

Employment is expected to grow at the average rate, based on the outlook in the Health/Welfare Institutions sector where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may be particularly sensitive to government expenditure policies. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Job opportunities may exist in facilities such as convalescent homes and day care services, chronic and rehabilitation centres, in home care programs, and to some extent in diagnostic and therapeutic centres. The declining rate of growth for nursing assistants in acute hospitals is likely to be offset by a higher rate of growth in other institutions.

At the 1981 Census, females were predominant in this occupational group. An average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

For further information, contact:

Canadian Hospital Association
Research Department
17 York Street
Ottawa, Ontario
K1N 9J6
(613) 238-8005

Canadian Nurses Association
50 The Driveway
Ottawa, Ontario
K2P 1E2
(613) 237-2133

3136

Audio and Speech Therapists, plus 3137 Physiotherapists, plus 3138 Occupational Therapists

Examples: Oral Therapist
Speech Pathologist
Electrotherapist
Mechanotherapist
Recreational Therapist

Employment trends (000s) 1985: 15.1	1992: 17.6	Change: 2.5
Estimated attrition due to labour force withdrawals (000s)		1985-92: 2.6
	Total requirements (000s):	5.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	85%	40%	Under 25 years:	25%	25%
Males:	15%	60%	Over 54 years:	6%	12%

Employment prospects in this group will depend on the outlook in Health/Welfare, Education Services and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations are particularly sensitive to government expenditure policies. In the 1970s, occupations in this group did not experience a significant change in their share of the workforce in the industries where they are primarily employed as a result of changes in technology and/or work organization.

Audio and speech therapists, physiotherapists and occupational therapists are in short supply throughout all provinces because of the growth in demand for services that this group of rehabilitative personnel provides. The growing trend to early detection of speech and hearing problems, the increase in the elderly segment of the population with chronic conditions or with rehabilitation needs, the public acceptance of disabled persons, and advances in medical procedures brighten the prospects of most of these occupations. More opportunities exist for rehabilitative personnel in remote areas than elsewhere.

At the 1981 Census, females were predominant in this occupational group. A below-average proportion was older than 54, implying that increases in labour demand due to age-retirement may not be large.

For further information, contact:

École de réadaptation
University of Montreal
2375 Côte Sainte-Catherine
Montreal, Quebec
H3T 1A8
(514) 392-5053

Canadian Hospital Assocation
Research Department
17 York Street
Ottawa, Ontario
K1N 9J6
(613) 238-8005

Canadian Association of Occupational Therapists
110 Eglinton Avenue West
3rd Floor
Toronto, Ontario
M4R 1A3
(416) 487-5404

Pharmacists

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $29,600

Employment trends (000s) 1985: 14.5	1992: 15.9	Change: 1.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 3.2
	Total requirements (000s):	4.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	42%	40%	Under 25 years:	10%	25%
Males:	58%	60%	Over 54 years:	18%	12%

Employment is expected to grow at the average rate, based on the outlook in Trade and Health/Welfare Institutions sector where the occupation is concentrated. Reflecting the employment patterns of these sectors, the occupation may be moderately sensitive to overall changing economic conditions but would be particularly sensitive to government expenditure policies. Based on historical analysis, the occupational group has been found to be moderately sensitive to changes in technology and/or work organization.

However, this situation may change in the future in Health/Welfare institutions as the increasing complexity of drug therapy and the increasing need to monitor interactions with patients subjected to more multidiagnostic and treatment schedules could increase the relative importance of pharmacists within hospitals. The aging of the population requiring more treatments and drugs, as well as the growing number of pharmaceutical products, will contribute to positive job prospects for this occupation.

At the 1981 Census, males represented a majority in this occupational group. In addition, a relatively large proportion was older than 54, indicating that increases in labour demand owing to age-retirement may be large.

For further information, contact:

Canadian Hospital Association
Research Department
17 York Street
Ottawa, Ontario
K1N 9J6
(613) 238-8005

Association of Deans of Pharmacy of Canada
College of Pharmacy
University of Saskatchewan
Saskatoon, Saskatchewan
S7N 0W0
(306) 966-6328
(514) 343-6440

3152

Dietitians and Nutritionists

Examples: Diet Therapist
Research Nutritionist

Employment trends (000s) 1985: 3.5	1992: 4.1	Change: 0.6
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.7
	Total requirements (000s):	1.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	94%	40%	Under 25 years:	22%	25%
Males:	6%	60%	Over 54 years:	5%	12%

Employment is expected to grow at the average rate, based on the outlook in the Health/Welfare Institutions sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The dietitian's activities have expanded beyond hospitals to clinics, counselling and community health establishments. Current trends in health care delivery indicate that the demand for dietitians may increase with concomitant emphasis on community-based programs for seniors. These include home care, day care and nutrition promotion and prevention programs for lifestyle and chronic diseases. Career advancement should be better for those dietitians who have some area of specialization, e.g., diabetes, geriatrics, pediatrics and food service management.

At the 1981 Census, females were predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

For further information, contact:

Canadian Hospital Association
Research Department
17 York Street
Ottawa, Ontario
K1N 9J6
(613) 238-8005

The Canadian Dietetic Association
480 University Avenue
Suite 604
Toronto, Ontario
M5G 1V2
(416) 596-0857

Optometrists

Employment trends (000s) 1985: 2.2	1992: 2.6	Change: 0.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.6
	Total requirements (000s):	1.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	17%	40%	Under 25 years:	10%	25%
Males:	83%	60%	Over 54 years:	24%	12%

Employment prospects in this group will depend on the outlook in the Health/Welfare Institutions sector where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may not be particularly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The increasing importance placed on good vision will benefit this occupational group. The growing number of people over age 45 is quite likely to increase demand for vision care, leading to some job opportunities. Also, as children now require frequent eye examinations to ensure such abilities as depth and colour perception, employment prospects may be better.

At the 1981 Census, males were predominant in this occupational group. A considerable proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be significant.

For further information, contact:

Canadian Hospital Association
Research Department
17 York Street
Ottawa, Ontario
K1N 9J6
(613) 238-8005

3154

Dispensing Opticians

Examples: Eyeglass Fitter
Eyeglass Maker
Optical Dispenser
Ophthalmic Dispenser

Employment trends (000s) 1985: 3.4	1992: 3.8	Change: 0.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.5
	Total requirements (000s):	0.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	39%	40%	Under 25 years:	17%	25%
Males:	61%	60%	Over 54 years:	9%	12%

Employment prospects in this group will depend on the outlook in the Trade sector where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may not be particularly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The demand for dispensing opticians will be affected by a growing segment of the population over age 45; children receiving more screening tests; contact lenses becoming cheaper through technological improvements; and the increasing number of people likely to own more than one pair of corrective lenses.

At the 1981 Census, males represented a majority in this occupational group. A below-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

For further information, contact:

Canadian Hospital Association
Research Department
17 York Street
Ottawa, Ontario
K1N 9J6
(613) 238-8005

3155

Radiological Technologists and Technicians

Examples: Nuclear Medicine Technician
Radioisotope Technician
Roentgen Technologist
X-ray Technician

Average salaries, full-time employed two years after graduation (1984):		
Community college: N/A	University: $20,310	
Employment trends (000s) 1985: 10.2	1992: 11.9	Change: 1.7
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.4
	Total requirements (000s):	3.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	79%	40%	Under 25 years:	7%	25%
Males:	21%	60%	Over 54 years:	4%	12%

Employment is expected to grow at the average rate, based on the outlook in the Health/Welfare, and Institutions sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be particularly sensitive to governments' expenditure policies. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

During a one-year period between 1979-80, general hospitals employed 92 per cent of all radiological technicians but many of these positions changed from full-time to part-time. Within this occupation group, X-ray technicians were most likely to be in demand, particularly in some western provinces. However, opportunities were better for those technologists whose specialty was in nuclear medicine because of its relative newness and expansion. With technological advances affecting this particular occupational group, there may be shifts in demand for ultra sound technicians and nuclear magnetic resources, with some decline in demand for X-ray technicians. Employment opportunities are best in hospitals serving sparsely populated areas.

At the 1981 Census, females were predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

For further information, contact:

Canadian Hospital Association
Research Department
17 York Street
Ottawa, Ontario
K1N 9J6
(613) 238-8005

3156

Medical Laboratory Technologists and Technicians

Examples: Biochemistry Technologist
Microbiology Technologist
Pathological Technician
Pharmacy Technician

Average salaries, full-time employed two years after graduation (1984):
Community college: $21,300 University: $22,700

Employment trends (000s)	1985: 36.0	1992: 41.7	Change: 5.7
Estimated attrition due to labour force withdrawals (000s)			1985-92: 5.4
		Total requirements (000s):	11.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	78%	40%	Under 25 years:	21%	25%
Males:	22%	60%	Over 54 years:	5%	12%

Employment is expected to grow at the average rate, based on the outlook in the Health/Welfare Institutions sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be particularly sensitive to government expenditure policies. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Prospects are promising because of the growing reliance on laboratory tests for detection, diagnosis and treatment of cancer and heart disease. Advances in clinical research and bio-engineering will most likely lead to increased demand for personnel to operate new laboratory equipment. However, a concern over medical costs may limit growth here. Owing to rapid technological advances, those technologists who are inactive and wish to return to work will find it necessary to undertake refresher courses to be able to find suitable employment.

At the 1981 Census, females were predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

For further information, contact:

Canadian Hospital Association
Research Department
17 York Street
Ottawa, Ontario
K1N 9J6
(613) 238-8005

3157

Denturists, plus 3158 Dental Hygienists/Assistants, plus 3161 Dental Laboratory Technicians

Examples: Oral Hygienist
Orthodontic Technician
Dental Ceramist

Employment trends (000s) 1985: 25.8	1992: 33.9	Change: 8.1
Estimated attrition due to labour force withdrawals (000s)		1985-92: 4.8
	Total requirements (000s):	12.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	80%	40%	Under 25 years:	22%	25%
Males:	20%	60%	Over 54 years:	5%	12%

Employment is expected to grow at a faster than average rate, based on the outlook in Miscellaneous Manufacturers (including plastics), Health/Welfare Institutions and Dentists Offices sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may not be particularly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The growing emphasis being placed on orthodontic and cosmetic dental work, as well as an aging population's need for crowns and dentures, could spur a growth in demand for denturists and dental laboratory technicians.

At the 1981 Census, females were a 4 to 1 majority in this occupational group. A relatively small proportion was older than 54, indicating that increases in labour demand owing to age-retirement may not be large.

The geographical distribution for this occupation is also a factor to be taken into consideration. Over half (55.4%) of its workforce was located in Ontario at the time of the 1981 Census.

For further information, contact:

Canadian Hospital Association
Research Department
17 York Street
Ottawa, Ontario
K1N 9J6
(613) 238-8005

3313

Product and Interior Designers

Examples: Floral Designer
Decorating Consultant
Fabric Designer
Furniture Designer

Average salaries, full-time employed two years after graduation (1984):
Community college: $15,800 University: $17,700

Employment trends (000s) 1985: 21.2 1992: 23.8 Change: 2.6

Estimated attrition due to labour force withdrawals (000s) 1985-92: 3.7

Total requirements (000s): 6.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	58%	40%	Under 25 years:	22%	25%
Males:	42%	60%	Over 54 years:	10%	12%

Employment is expected to grow at the average rate, based on the outlook in the Trade and Business and Education Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Demand for product designers is expected to be good in response to an emphasis placed on product quality, aesthetic appeal, practicality and safety, and on high technology products. particularly for those manufactured for industries. Population and income growth will open up opportunities for floral and fashion designers. Job turnover is rapid and competition is fierce in this line of work, except for those with particular talent and skills.

At the 1981 Census, females represented a majority in this occupational group. An about-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

3314

Advertising and Illustrating Artists

Examples: Art Director
Commercial Artist
Graphic Artist

Average salaries, full-time employed two years after graduation (1984):
Community college: $17,400 University: $23,400

Employment trends (000s) 1985: 18.7 1992: 21.4 Change: 2.7

Estimated attrition due to labour force withdrawals (000s) 1985-92: 2.5

Total requirements (000s): 5.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	37%	40%	Under 25 years:	23%	25%
Males:	63%	60%	Over 54 years:	7%	12%

Employment is expected to grow at the average rate, based on the outlook in the Business Services and Education Services, Printing and Publishing sectors where the occupation is concentrated. Reflecting the employment patterns of these sectors, the occupation may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

A renewed emphasis on visual appeal has benefited commercial artists whose work has been aided to some extent by computer graphics. Competition in this field is keen and those artists with exceptional talents and skills are most likely to be employed.

At the 1981 Census, males represented a majority in this occupational group. In addition, a below-average proportion was older than 54, indicating that increases in labour demand owing to age-retirement may not be large.

3315

Photographers and Camera Operators

Examples: Aerial Photographer
Scientific Photographer
Video Camera Operator

Employment trends (000s) 1985: 8.6	1992: 10.3	Change: 1.7
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.1
	Total requirements (000s):	2.8

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	19%	40%	Under 25 years:	20%	25%
Males:	81%	60%	Over 54 years:	9%	12%

Employment is expected to grow at a faster than average rate, based on the outlook in the Miscellaneous Services and Education Services, Radio and Television Broadcasting sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, the occupation may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The increasing use of visual aids in business to promote products, of photographs in law enforcement and medical research, and the popularity of store front photography will provide some opportunities for employment. However, the technology-induced fall in camera prices and increases in quality translate into keen competition for jobs as there may be a decline in demand for the professional photographer. The widening use of VCR machines at social functions may be another factor contributing to the demand of camera operators. Most opportunities are part-time and there is keen competition for vacancies.

At the 1981 Census, males were predominant in this occupational group. In addition, a below-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

These occupations are currently facing labour market conditions that are not very favorable as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

3330

Producers and Directors, Performing and Audio-Visual Arts

Examples: Audio Visual Coordinator
Program Director
Dramatic Director
Sound-Effects Supervisor

Employment trends (000s) 1985: 10.1	1992: 12.2	Change: 2.1
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.1
	Total requirements (000s):	3.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	29%	40%	Under 25 years:	12%	25%
Males:	71%	60%	Over 54 years:	6%	12%

Employment is expected to grow at a faster than average rate, based on the outlook in Radio and Television Broadcasting, and Recreation Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The expansion of films, commercials and, more recently, videos will help open job opportunities for directors and producers.

At the 1981 Census, males represented a majority in this occupational group. In addition, a relatively small proportion was older than 54, implying that the increases in labour demand owing to age-retirement may not be large.

3337

Radio and Television Announcers

Examples: Broadcaster
Disc Jockey
Newscaster
Sports Announcer

Employment trends (000s) 1985: 6.5	1992: 7.4	Change: 0.9
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.5
	Total requirements (000s):	1.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	18%	40%	Under 25 years:	36%	25%
Males:	82%	60%	Over 54 years:	4%	12%

Employment is expected to grow at the average rate, based on the outlook in Radio and Television Broadcasting sectors where the occupation is concentrated. Reflecting the employment patterns of these sectors, the occupation may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The growing number of radio and television stations, including cable, will provide some employment opportunities. However, the increasing popularity of automatic programming equipment may keep the demand for announcers from rising as fast as the broadcasting industry in general.

There is a very high turnover of personnel in this field, which could translate into more numerous job opportunities than indicated in this projection. The fact that a percentage of available work is in the nature of independent contracting, and not staff employment, is also a factor explaining the relatively young age structure of this occupational group.

For further information, contact:

Alliance of Canadian Cinema
Television and Radio Artists (ACTRA)
2239 Yonge Street
Toronto, Ontario
M4S 2B5
(416) 489-1311

3351

Writers and Editors

Examples: Advertising Editor
Art Editor
Book Reviewer
Copy Writer
Film Editor
News Reporter

Average salaries, full-time employed two years after graduation (1984):
Community college: $17,900 University: $18,900

Employment trends (000s) 1985: 29.5 1992: 33.7 Change: 4.2

Estimated attrition due to labour force withdrawals (000s) 1985-92: 5.4

Total requirements (000s): 9.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	42%	40%	Under 25 years:	14%	25%
Males:	58%	60%	Over 54 years:	12%	12%

Employment is expected to grow at the average rate, based on the outlook in the Printing and Publishing, Miscellaneous Services, and Radio and TV Broadcasting sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may not be particularly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Technological advances in office equipment have had considerable impact on this group as word processors allow the writer to be on-line and manipulate numerical data, words and pictures. Writers' and editors' repetitive tasks such as proofreading and editing can be performed automatically. Word processors also allow this group to create or publish documents of high visual quality.

The demand for technical writers may be strong, resulting from the growing need to prepare instructions for complex scientific equipment. Publication writers and editors should also enjoy opportunities for employment as the popularity of publications increases. Familiarity with new office equipment and computer systems is an asset.

At the 1981 Census, males represented a majority in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

For further information, contact:

Canadian Authors Association
24 Ryerson Avenue Toronto, Ontario M5T 2P3
(416) 364-4203

3355

Translators and Interpreters

Examples: Foreign Broadcast Translator
Scientific Documents Translator
Interpreters

Average salaries, full-time employed two years after graduation (1984):
Community college: N/A University: $24,300

Employment trends (000s) 1985: 6.0 1992: 6.9 Change: 0.9

Estimated attrition due to labour force withdrawals (000s) 1985-92: 1.1

Total requirements (000s): 2.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	60%	40%	Under 25 years:	13%	25%
Males:	40%	60%	Over 54 years:	12%	12%

Employment is expected to grow at the average rate, based on the outlook in the Public Administration and Miscellaneous Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may not be particularly sensitive to changing economic conditions. In the 1970s, occupations in this group experienced an increase in their share of the workforce in the industries where they are primarily employed as a result of changes in technology and/or work organization.

The need to translate the increasing number of foreign language scientific and technical manuals will spur the demand for those trained in this occupational area. The art of translation is especially relevant in a country such as Canada that actively promotes bilingualism as a policy. Finally, attention should be paid to the growing use of computers to translate material, particularly of a technical nature.

At the 1981 Census, females represented a majority in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

The geographical distribution for this occupation is also a factor to be taken into consideration. Half (50.0%) of its workforce was located in Quebec at the time of the 1981 Census.

3370

Coaches, Trainers, and Inspectors, Sports and Recreation

Examples: Gymnasium Instructor
Physical Training Teacher
Athletic Coach

Employment trends (000s) 1985: 18.3	1992: 22.5	Change: 4.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.9
	Total requirements (000s):	6.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	56%	40%	Under 25 years:	50%	25%
Males:	44%	60%	Over 54 years:	2%	12%

Employment is expected to grow at a faster than average rate, based on the outlook in the Recreation Services, Public Administration, and Education Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be highly sensitive to changing economic conditions. An increasing emphasis on sport and recreation should provide some opportunities for this occupational group.

At the 1981 Census, males and females were almost evenly distributed in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

These occupations are currently facing favorable labour market conditions as indicated by their lower-than-average U.I. claimant rate and higher-than- average hard-to-fill vacancy rate.

4111

Secretaries and Stenographers

Examples: Legal Secretary
Stenotypist

Average salaries, full-time employed two years after graduation (1984):
Community college: $14,100 University: $16,200

Employment trends (000s) 1985: 365.9	1992: 412.8	Change: 46.9
Estimated attrition due to labour force withdrawals (000s)		1985-92: 71.0
	Total requirements (000s):	117.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	99%	40%	Under 25 years:	27%	25%
Males:	1%	60%	Over 54 years:	8%	12%

Employment prospects in this group will depend on the outlook in a number of service sectors where the occupation is concentrated. Reflecting the employment patterns of these sectors, the occupation may be moderately sensitive to changing economic conditions. Secretaries perform a variety of administrative and sometimes clerical duties in an organization. This occupation group is part of a communications network. Secretaries' duties include filing, proofreading, typing, responding to correspondence, taking and transcribing dictation. Some do specialized work as legal and medical secretaries.

Work organization and the impact of new technology differ according to circumstances; that is, the size of the firm and nature of the industry/sector. Word processors are among the office automation equipment contributing to new forms of work organization. Typing is now carried out more efficiently in less time and with greater specialization than previously. Many specific applications of new office automation such as files, text, and sometimes graphics can be integrated.

The secretary's role is most likely to undergo transformation as the price of hardware and software decline and as integration of most office automation continues. The large size of this occupational group practically guarantees a large number of job openings, particularly among part-time workers. The spread of office automation implies that knowledge of new office machines is essential, and that occupational growth projections listed here are likely to be over-estimates.

At the 1981 Census, females were predominant in this occupational group. In addition, a below-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

4113

Typists and Clerk-typists

Examples: Addressing Clerk
Dictaphone Transcriber
Multiplex-Machine Operator

Employment trends (000s) 1985: 99.9	1992: 113.2	Change: 13.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 18.3
	Total requirements (000s):	31.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	98%	40%	Under 25 years:	38%	25%
Males:	2%	60%	Over 54 years:	6%	12%

Employment is expected to grow at the average rate, based on the outlook in the Public Administration, Finance and Business Services sectors where the occupation is concentrated. Reflecting the employment patterns of these sectors, the occupation may be moderately sensitive to changing economic conditions.

Typists maintain the flow of written communication by typing written, printed and recorded words. Other responsibilities for this group are operating office machines such as copiers, answering telephones and filing. Some specialized typists are clerk-typists and transcribers. Typists are often located in typing pools. Word processing is part of the office automation equipment contributing to new forms of work organization. Although there are still typing pools, new technology has created a potential for change. With the introduction of office automation many applications can be integrated. As a result, different groups of specialized typists can be organized.

The typist's role is most likely to undergo transformation as the price of hardware and software decline, and as integration of most office automation continues. Though office automation has slowed the rate of increase, employment opportunities, particularly part-time, will continue to exist, owing to the sheer size of this occupation group. Prospects are best for those who have the necessary skills to operate the new and existing equipment.

At the 1981 Census, females were extremely predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

This occupation is currently facing labour market conditions that are not very favorable as indicated by its higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

4131

Bookkeepers and Accounting Clerks

Examples: Assessing Clerk
Audit Clerk
Charge-Account Clerk
Cost Clerk
Ledger Clerk

Average salaries, full-time employed two years after graduation (1984):
Community college: $13,700 University: N/A

Employment trends (000s) 1985: 386.1 1992: 434.7 Change: 48.6

Estimated attrition due to labour force withdrawals (000s) 1985-92: 77.5

Total requirements (000s): 126.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	82%	40%	Under 25 years:	26%	25%
Males:	18%	60%	Over 54 years:	10%	12%

Employment prospects in this group will depend on the outlook in the Trade and Finance sectors where the occupation is concentrated. Reflecting the employment patterns of these sectors, the occupation may be moderately sensitive to changing economic conditions.

The sheer size of this occupation group and the transient nature of many of its members imply that a number of job-openings will continue to exist. In addition, the volume of business transactions and the need to take account of them are expected to increase. Technological advances allow electronic processing, so that small business computers and electronic cash registers can perform a variety of bookkeeping and inventory functions. New microprocessor-based time clocks calculate overtime hours and vacation accrued and perform a variety of data manipulations previously carried out by payroll clerks. These models can communicate with computers that process cheques, eliminating the need for payroll clerks. Most functions performed by this group can be perfomed faster and more efficiently by new micro-processors, and prices are declining rapidly, thus somewhat limiting job opportunities. The above projections are therefore likely to be over-estimates of the employment growth in this group.

At the 1981 Census, females were predominant in this occupational group. In addition, an about average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

Cashiers and Tellers

Examples: Bank Teller
Grocery Checker
Ticket Agent
Change Attendant

Average salaries, full-time employed two years after graduation (1984):
Community college: $11,800 University: N/A

Employment trends (000s) 1985: 243.1 1992: 273.4 Change: 30.3

Estimated attrition due to labour force withdrawals (000s) 1985-92: 34.3

Total requirements (000s): 64.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	93%	40%	Under 25 years:	53%	25%
Males:	7%	60%	Over 54 years:	5%	12%

Employment prospects in this group will depend on the outlook in the Trade, Finance, and Personal/Hospitality Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions.

Rising population and incomes will create a demand for goods and services and therefore will contribute to a great number of job openings for this large occupation group. Cashiers' opportunities for employment, often of a part-time nature, exist in all sorts of retail businesses.

The expanding use of computerized cash registers, however, has limited their growth somewhat. Four main types of technological changes affecting the banking industry are: electronic funds transfer (EFT), where the physical transfer of paper bank notes, cheques and money orders are now replaced with messages sent by electronic impulses; automated teller machines (ATMs) that allow customers to make cash withdrawals and at times deposit cash and cheques, as well as transfer funds between accounts; counter terminals that are now equipped to enable tellers to transmit current information and can reduce labour used in the recording of information; and cheque truncation where information contained on cheques is recorded electronically.

These innovations have been labour saving, with gains in total productivity. The above projections are therefore likely to be overestimates of the employment growth in this group.

At the 1981 Census, females were highly predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large. The relatively high youth component in these occupations reflects the likelihood that there is rapid movement to other occupations.

These occupations are currently facing labour market conditions that are not very favorable as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

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4135

Insurance, Bank and Other Finance Clerks

Examples: Claims Calculator
Foreign Exchange Clerk
Discount Clerk
Securities Clerk

Employment trends (000s) 1985: 43.9	1992: 50.1	Change: 6.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 7.5
	Total requirements (000s):	13.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	87%	40%	Under 25 years:	35%	25%
Males:	13%	60%	Over 54 years:	5%	12%

Employment is expected to grow at the average rate, based on the outlook in the Finance sector where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may not be particularly sensitive to changing economic conditions. The rising number of finance and related transactions in business should open up a number of job opportunities for this occupation group. Banks continue to diversify their services into areas such as real estate mortgages and securities, and pursue global markets. Certain aspects may be labour intensive and create some demand for these workers.

Alternatively, the impact of computers on the finance sector has eliminated a number of repetitive back-office tasks such as filing, and data entry. On-line computerization redistributes a good deal of the data keying to direct keying of data through the keyboard and a terminal with editing capacity, thereby enhancing productivity. These changes requiring more analytical skills have resulted in reorganization of tasks in the insurance sector. Raters (those who calculated insurance rates) have become redundant because of software packages. However, with access to customer files and rates, insurance clerks can spend more time with customers and use the data to make themselves more competent.

As trends in office automation continue and computer systems become cheaper and capable of performing more manipulations, the above projections are likely to be overestimates of the employment growth in this group.

At the 1981 Census, females were predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large. The relatively high youth component in the occupation reflects the likelihood that there is rapid turnover and movement to other occupations.

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4137

Statistical Clerks

Examples: Census Clerk
Compiler
Tabulating Clerk

Employment trends (000s) 1985: 9.8	1992: 11.1	Change: 1.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.9
	Total requirements (000s):	3.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	74%	40%	Under 25 years:	28%	25%
Males:	26%	60%	Over 54 years:	12%	12%

Employment is expected to grow at the average rate, based on the outlook in the Public Administration sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may not be particularly sensitive to changing economic conditions.

The impact of main frame computers has led to the elimination, since the '60s, of repetitive tasks performed by clerical workers and statistical clerks. Clerks in smaller offices have not been affected, but as electronic processing becomes more affordable and more widely distributed, growth will be negatively affected.

The software packages and office equipment that can manipulate data more efficiently will translate into little personnel growth and could transform the skills requirement for this occupation. An increasing demand for data among researchers and analysts will continue to create job openings, though the use of computers to store, manipulate and report the figures will limit the growth of opportunities. Therefore, the above projections are likely to be overestimates of the employment growth in this group.

At the 1981 Census, females represented a great majority in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

The geographical distribution for this occupation is also a factor to be taken into consideration. Over half (53.5%) of its workforce was located in Ontario at the time of the 1981 Census.

4143

Electronic Data Processing Equipment Operators

Examples: Word Processing Machine Operator
Computer Operator
Data Processor

Average salaries, full-time employed two years after graduation (1984):
Community college: $16,700 University: N/A

Employment trends (000s) 1985: 75.0 1992: 84.4 Change: 9.4

Estimated attrition due to labour force withdrawals (000s) 1985-92: 9.7

Total requirements (000s): 19.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	80%	40%	Under 25 years:	37%	25%
Males:	20%	60%	Over 54 years:	3%	12%

Employment is expected to grow at the average rate, based on the outlook in the Public Administration, Finance, Trade, and Business Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, occupations in this group experienced an increase in their share of the workforce in the industries as a result of changes in technology and/or work organization.

The extension of word processing machines into all industries will increase job opportunities for word processing machine operators. Automation has transformed the duties of typists and secretaries into those of word processing, which may add to growth in this occupation. However, increasing sophistication and use of micro and personal computers may lower the openings for computer operators. As the functions and capabilities of computers grow, so, too, do the functions of this occupational group. For example, the need for key punch operators, who were once in great demand, is declining as data processing equipment changes from data keying to on-line computerization.

At the 1981 Census, females were predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

4151

Production Clerks

Examples: Material Checker
Progress Clerk
Stock Tracer

Employment trends (000s) 1985: 16.9	1992: 18.8	Change: 1.9
Estimated attrition due to labour force withdrawals (000s)		1985-92: 2.1
	Total requirements (000s):	4.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	36%	40%	Under 25 years:	24%	25%
Males:	64%	60%	Over 54 years:	9%	12%

Employment prospects in this group will depend on the outlook in the Trade, various Durable Manufacturing Sectors and Business Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. In a climate where businesses are striving for internal efficiency, the need for production clerks should create some demand for these clerks who are familiar with this type of information network.

Most production clerks are involved in the movement and transformation of products during manufacture. The impact of the new on-line P.O.S. (Point of Sale) technology is where inventory control, stores stocking and warehousing take place. Firms now have the ability to introduce just-on-time procedures for shelf stocking and decrease their extensive stock rooms. This shift to on-line inventory control has substantially reduced the need for stock clerks.

At the 1981 Census, males represented a majority in this occupational group. In addition, a below-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

The geographical distribution for this occupation is also a factor to be taken into consideration. Over half (57.7%) of its workforce was located in Ontario at the time of the 1981 Census.

4153

Shipping and Receiving Clerks

Examples: Delivery Clerk
Dispatcher Clerk
Freight Clerk
Loading Clerk
Receiving Clerk
Routing Clerk

Employment trends (000s) 1985: 89.2	1992: 98.8	Change: 9.6
Estimated attrition due to labour force withdrawals (000s)		1985-92: 11.1
	Total requirements (000s):	20.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	17%	40%	Under 25 years:	38%	25%
Males:	83%	60%	Over 54 years:	11%	12%

Employment is expected to grow at the average rate, based on the outlook in the Trade, Miscellaneous Transport/Storage, Metal Fabricating and other Food and Beverage sectors where the occupation is concentrated. Reflecting the employment patterns of these sectors, the occupation may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The sheer size and transient nature of this workforce will open up a number of job opportunities. However, new on-line P.O.S. (Point of Sale) technology that permits the shift to on-line inventory control in stores and warehouses has limited growth in this group.

At the 1981 Census, males were predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

This occupation is currently facing labour market conditions that are among the least favorable as indicated by its higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

4155

Stock Clerks and Related Occupations

Examples: Purchasing Clerk
Parts Clerk
Commissary Clerk
Inventory Clerk
Laboratory Clerk

Average salaries, full-time employed two years after graduation (1984):
Community college: $11,400 University: N/A

Employment trends (000s) 1985: 96.3 1992: 106.2 Change: 9.9

Estimated attrition due to labour force withdrawals (000s) 1985-92: 13.2

Total requirements (000s): 23.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	28%	40%	Under 25 years:	40%	25%
Males:	72%	60%	Over 54 years:	11%	12%

Employment is expected to grow at the average rate, based on the outlook in the Trade sector where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. A renewed interest in accountability in the use of supplies, and the large size of this group may mean a number of job openings in the future. On the negative side, greater use of computerized inventories may reduce personnel needs or create new skill needs for those in the field.

At the 1981 Census, males represented a majority in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

4171

Receptionists and Information Clerks

Examples: Admitting Clerk
Appointment Clerk
Clerical Office Assistant
Telephone Clerk

Average salaries, full-time employed two years after graduation (1984):
Community college: $13,200 University: N/A

Employment trends (000s) 1985: 94.2 1992: 107.3 Change: 13.1

Estimated attrition due to labour force withdrawals (000s) 1985-92: 18.7

Total requirements (000s): 31.8

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	95%	40%	Under 25 years:	37%	25%
Males:	5%	60%	Over 54 years:	9%	12%

Employment is expected to grow at faster than the average rate, based on the outlook in a wide range of Service sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. A continuing need for the human element in promoting a company's image implies that there may be some demand for this occupation group. Typing and word processing skills are an asset.

At the 1981 Census, females were highy predominant in this occupational group. A below-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

These occupations are currently facing labour market conditions that are not very favorable as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

4192

Claim Adjusters

Examples: Complaint Adjuster
Freight Adjuster
Bill Adjuster

Employment trends (000s)	1985: 9.4	1992: 10.6	Change: 1.2
Estimated attrition due to labour force withdrawals (000s)			1985-92: 1.8
		Total requirements (000s):	3.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	65%	40%	Under 25 years:	29%	25%
Males:	35%	60%	Over 54 years:	13%	12%

Employment is expected to grow at the average rate, based on the outlook in the Finance, Public Administration and Trade sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

At the 1981 Census, females represented a majority in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

The geographical distribution for these occupations are also a factor to be taken into consideration. Over half (51.1%) of its workforce was located in Ontario at the time of the 1981 Census.

4197

General Office Clerks

Examples: Administrative Clerk
Forms Control Clerk
Process Clerk

Average salaries, full-time employed two years after graduation (1984):
Community college: $13,500 University: N/A

Employment trends (000s) 1985: 141.7 1992: 159.7 Change: 18.0

Estimated attrition due to labour force withdrawals (000s) 1985-92: 28.1

Total requirements (000s): 46.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	81%	40%	Under 25 years:	31%	25%
Males:	19%	60%	Over 54 years:	11%	12%

Employment prospects in this group will depend on the outlook in the Public Administration, Trade and Finance sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The large size of this occupational group may mean a large number of job openings in the future. Office automation has had a strong impact on this occupation. Main frame computers have been able to perform the tasks of back-office clerical workers. Small business computers perform a variety of bookkeeping and inventory functions. Office purchasing systems automate the control of office supplies. Quite a number of tasks previously done by this group can be performed by some microprocessors that become more economical every year. Office automation, however, will invariably redefine this group's tasks, which are of a broad nature, and therefore, growth could be slowed to below average.

At the 1981 Census, females were predominant in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

These occupations are currently facing labour market conditions that are not very favorable as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

5130

Supervisors: Sales Occupations, Commodities

Examples: Antique Dealer
Car Dealer
Confectioner
Florist
Jeweller
Lumber Dealer
Oil Distributor

Employment trends (000s) 1985: 133.1	1992: 144.3	Change: 11.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 25.1
	Total requirements (000s):	36.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	30%	40%	Under 25 years:	13%	25%
Males:	70%	60%	Over 54 years:	14%	12%

Employment is expected to grow at less than the average rate, based on the outlook in the Trade sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The occupations in this group cover a wide spectrum of small businesses. This area has been less affected by computerization than others and is one where employment growth traditionally takes place. Although these are supervisory positions, opportunities should be better for those with entrepreneurial skills.

At the 1981 Census, males represented a majority in this occupational group. In addition, a proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

5131

Technical Sales and Related Advisory Occupations

Examples: Construction Equipment Technical Salesperson
Data Processing Sales Representative
Industrial Machinery Salesperson

Employment trends (000s) 1985: 11.2	1992: 12.4	Change: 1.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.3
	Total requirements (000s):	2.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	10%	40%	Under 25 years:	12%	25%
Males:	90%	60%	Over 54 years:	10%	12%

Employment is expected to grow at the average rate, based on the outlook in the Trade and Business Services sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Opportunities exist in this line of work for those marketing the chemical, mechanical, electrical or electronic products of the technological revolution.

At the 1981 Census, males were highly predominant in this occupational group. An average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

5133

Commercial Travellers

Examples: Pharmaceutical Representative
Grocery Salesperson
Service Representative

Average salaries, full-time employed two years after graduation (1984):
Community college: $20,800 University: N/A

Employment trends (000s) 1985: 101.5 1992: 111.1 Change: 9.6

Estimated attrition due to labour force withdrawals (000s) 1985-92: 14.2

Total requirements (000s): 23.8

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	11%	40%	Under 25 years:	10%	25%
Males:	89%	60%	Over 54 years:	12%	12%

Employment is expected to grow at the average rate, based on the outlook in the Trade sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Because of the large size of this group and the high turnover ratio of salespersons, one can expect quite a number of openings. In some sales jobs, people work long and flexible hours or part-time. These jobs are not routine, structured ones. Earnings depend on performance and vary according to the product being sold.

Opportunities are both seasonal and cyclical. During recessions, the volume of sales declines, especially for durable goods, as people tend to postpone large purchases.

At the 1981 Census, males were predominant in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

5135

Sales Clerks and Salespersons, Commodities, Not Elsewhere Classified

Examples: Grocery Store Clerk
Parts Clerk
Hardware Salesperson

Average salaries, full-time employed two years after graduation (1984):
Community college: $15,700 University: N/A

Employment trends (000s) 1985: 546.9 1992: 592.7 Change: 45.8

Estimated attrition due to labour force withdrawals (000s) 1985-92: 23.9

Total requirements (000s): 69.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	57%	40%	Under 25 years:	30%	25%
Males:	43%	60%	Over 54 years:	13%	12%

Employment is expected to grow at the average rate, based on the outlook in the Trade sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Because this is a large occupational group, a sizeable number of job openings are expected, though many may be part-time. By enabling them to record transactions and adjustments to inventory automatically, the new electronic cash registers have relieved salespersons of much of the traditional paperwork.

At the 1981 Census, females represented a majority in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

5170

Supervisors: Sales Occupations, Services

Examples: Bond Broker
Grain Broker
Insurance Broker
Mortgage Broker
Real Estate Broker

Employment trends (000s) 1985: 18.9	1992: 21.6	Change: 2.7
Estimated attrition due to labour force withdrawals (000s)		1985-92: 4.0
	Total requirements (000s):	6.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	23%	40%	Under 25 years:	6%	25%
Males:	77%	60%	Over 54 years:	16%	12%

Employment is expected to grow at the average rate, based on the outlook in the Finance sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, occupations in this group experienced a decrease in their share of the workforce as a result of changes in technology and/or work organization. A considerable number of these workers are self employed. Marketing skills are essential, with specialized knowledge of the related financial sector and a high degree of professionalism. Earnings are directly related to performance.

Employment growth will depend to a large extent on geographic location and general economic activity. As incomes rise and as demographic changes occur, short-term investment and long-term financial planning will increase. As banks and financial institutions pursue global markets, these activities will have a positive effect on those brokers involved in bonds and securities.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively high proportion was older than 54, implying that increases in labour demand owing to age-retirement may be large.

5171

Insurance Sales Occupations and Agents

Examples: Insurance Appraiser
Policy Writer
Fire Claims Adjuster

Average salaries, full-time employed two years after graduation (1984):
Community college: $20,200 University: $23,300

Employment trends (000s) 1985: 49.6 1992: 56.6 Change: 7.0

Estimated attrition due to labour force withdrawals (000s) 1985-92: 9.1

Total requirements (000s): 16.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	28%	40%	Under 25 years:	14%	25%
Males:	72%	60%	Over 54 years:	15%	12%

Employment is expected to grow at the average rate, based on the outlook in the Finance sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may not be particularly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

At the 1981 Census, males represented a majority in this occupational group. In addition, a relatively high proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be large.

5172

Real Estate Sales Occupations

Examples: Land Inspector
Real Estate Appraiser

Employment trends (000s) 1985: 61.4	1992: 70.0	Change: 8.6
Estimated attrition due to labour force withdrawals (000s)		1985-92: 14.5
	Total requirements (000s):	23.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	37%	40%	Under 25 years:	6%	25%
Males:	63%	60%	Over 54 years:	20%	12%

Employment is expected to grow at the average rate, based on the outlook in the Finance sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be particularly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The computerization of house listings has enabled brokers to serve prospective buyers more efficiently than in the past. The prime home-buying age group is expected to expand and consequently may contribute to a further increase in demand for the services of this occupational group. Licensing education is required for prospective workers in this occupational group. Provincial governments provide the mandate for training programs in conjunction with real estate associations.

At the 1981 Census, males represented a majority in this occupational group. In addition, a relatively high proportion was older than 54, implying that increases in labour demand owing to age-retirement may be large.

5173

Sales Agents and Trades, Securities

Examples: Bond Dealer
Floor Trader
Loan Broker
Securities Adviser
Stock Dealer

Employment trends (000s) 1985: 13.1	1992: 15.0	Change: 1.9
Estimated attrition due to labour force withdrawals (000s)		1985-92: 3.0
	Total requirements (000s):	4.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	21%	40%	Under 25 years:	12%	25%
Males:	79%	60%	Over 54 years:	17%	12%

Employment is expected to grow at an average rate, based on the outlook in the Finance sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be particularly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Over the next five years, as Canadian banks pursue global markets, there may be additional demand for the services of this group within banks.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively high proportion was older than 54, implying that increases in labour demand owing to age-retirement may be large.

The geographical distribution for this occupation is also a factor to be taken into consideration. Over half (50.5%) of its workforce was located in Ontario at the time of the 1981 Census.

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Advertising Sales Occupations

Examples: Program Time Salesperson
Sign and Display Salesperson

Employment trends (000s) 1985: 8.9	1992: 10.0	Change: 1.1
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.3
	Total requirements (000s):	2.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	37%	40%	Under 25 years:	17%	25%
Males:	63%	60%	Over 54 years:	10%	12%

Employment is expected to grow at an average rate, based on the outlook in the Printing and Publishing, and Business Services sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may not be particularly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

In an increasingly competitive economy, the need intensifies to promote and advertise company products. This may increase employment prospects for this occupational group.

At the 1981 Census, males represented a majority in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

6112

Police Officers and Detectives, Government

Examples: Chief Detective
Constable
Firearms Examiner
Traffic Officer

Average salaries, full-time employed two years after graduation (1984):
Community college: $25,400 University: N/A

Employment trends (000s) 1985: 54.5 1992: 62.8 Change: 8.3

Estimated attrition due to labour force withdrawals (000s) 1985-92: 3.5

Total requirements (000s): 11.8

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	4%	40%	Under 25 years:	12%	25%
Males:	96%	60%	Over 54 years:	5%	12%

Employment is expected to grow at the average rate, based on the outlook in the Public Administration sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be particularly sensitive to changing economic and social conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Local government budgetary restraints may serve to limit job openings. The increase in computer-related crimes, the greater sophistication of criminal acts and the police use of computers to identify fingerprints have implications for the job description of police officers.

At the 1981 Census, males were highly predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

6115

Guards and Related Security Occupations

Examples: Armoured-Car Guard
Prison Guard
Reformatory Guard
School-Crossing Guard

Average salaries, full-time employed two years after graduation (1984):
Community college: $17,100 University: N/A

Employment trends (000s) 1985: 80.4 1992: 92.5 Change: 12.1

Estimated attrition due to labour force withdrawals (000s) 1985-92: 27.0

Total requirements (000s): 39.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	18%	40%	Under 25 years:	20%	25%
Males:	82%	60%	Over 54 years:	31%	12%

Employment is expected to grow at about the average rate, based on the outlook in the Business Services, and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic and social conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The large size of this occupation group and a growing concern over protection against theft and vandalism imply numerous job openings in the future, particularly part-time. Though a labour-intensive activity, the greater use of video and electronic monitoring systems certainly affect the guard's duties on the job.

At the 1981 Census, males were predominant in this occupational group. In addition, a considerable proportion was older than 54, implying that increases in labour demand owing to age-retirement may be significant.

6120

Supervisors: Food and Beverage Preparation and Related Service Occupations

Examples: Caterer
Maître d'hôtel

Employment trends (000s) 1985: 56.8	1992: 69.6	Change: 12.8
Estimated attrition due to labour force withdrawals (000s)		1985-92: 9.3
	Total requirements (000s):	22.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	45%	40%	Under 25 years:	18%	25%
Males:	55%	60%	Over 54 years:	11%	12%

Employment is expected to grow faster than the average rate, based on the outlook in the Personal/Hospitality Services sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

As population grows, disposable incomes increase and more leisure time becomes available, caterers may be in greater demand as consumers spend less time on food preparation. As the industry matures and adjusts to technological change, this group's responsibilities must go beyond culinary art to acquiring managerial skills. Advancement opportunities within this group are better for those waiters/waitresses who serve in larger restaurants.

At the 1981 Census, females and males were almost evenly distributed in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

For further information, contact:

The Canadian Federation of Chefs de Cuisine
466 Crestview Rd.
Ottawa, Ontario
K1H 5G9
(613) 995-0001

6121

Chefs and Cooks

Examples: Cafeteria Cook
First Cook
Chef Patissier
Grill Chef
Executive Chef

Employment trends (000s) 1985: 161.7	1992: 196.6	Change: 34.9
Estimated attrition due to labour force withdrawals (000s)		1985-92: 27.3
	Total requirements (000s):	62.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	52%	40%	Under 25 years:	39%	25%
Males:	48%	60%	Over 54 years:	11%	12%

Employment is expected to grow faster than the average rate, based on the outlook in the Personal/Hospitality Services sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The terms chef and cook are often misinterpreted. However, the chef is more skilled, more highly trained and more experienced. Chefs are responsible for maintaining their restaurant's standards and reputation for cuisine. Cooks prepare the food for the restaurant with the help of short order cooks and kitchen assistants.

Population growth, rising incomes, more leisure time and increasing participation of women in the labour force result in a greater demand for restaurant food, both of a fast-food variety (requiring short order cooks) and, to a greater extent, of a foreign, speciality nature (requiring highly skilled chefs). As the industry matures and adjusts to technological change, this occupational group's responsibilities must go beyond culinary art to acquiring managerial skills — notably in the chef occupation. Technological developments affecting cooking include microwave ovens and computer storage/display of recipes.

At the 1981 Census, females and males were almost evenly distributed in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

For further information, contact:

The Canadian Federation of Chefs de Cuisine
466 Crestview Rd.
Ottawa, Ontario
K1H 5G9
(613) 995-0001

6125

Food and Beverage Serving Occupations

Examples: Waiter/Waitress
Cafeteria/buffet Attendant

Employment trends (000s) 1985: 248.2	1992: 306.9	Change: 58.7
Estimated attrition due to labour force withdrawals (000s)		1985-92: 31.8
	Total requirements (000s):	90.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	82%	40%	Under 25 years:	59%	25%
Males:	18%	60%	Over 54 years:	4%	12%

Employment is expected to grow faster than the average rate, based on the outlook in the Personal/Hospitality Services sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

There is a distinction between the part-time waiter/waitress who works in a small restaurant and provides fast service and those who serve meals, emphasize comfort and satisfaction in a more relaxed environment. Career waiters/waitresses must be familiar with the items on the menu, and be able to recommend wines and other beverages to complement the meal. Advancement opportunities for waiters/waitresses are better for those employed in large restaurants.

The sheer size of this occupational group and its low entry requirements may mean numerous job openings in the future, especially for the young. Increasing population, income and leisure time will add to the demand for food servers. The use of electronic order machines has improved the beverage server's efficiency.

At the 1981 Census, females were predominant in this occupational group. In addition, a relatively low proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

6141

Funeral Directors, Embalmers and Related Occupations

Examples: Cremator
Embalmer
Funeral Attendant
Mortician
Thanatologist

Average salaries, full-time employed two years after graduation (1984):
Community college: $21,700 University: N/A

Employment trends (000s) 1985: 3.4 1992: 4.2 Change: 0.8

Estimated attrition due to labour force withdrawals (000s) 1985-92: 1.0

Total requirements (000s): 1.8

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	9%	40%	Under 25 years:	16%	25%
Males:	91%	60%	Over 54 years:	24%	12%

Employment is expected to grow faster than the average rate, based on the outlook in the Personal/Hospitality Services sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may not be particularly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The aging of the population will mean a steady demand for the services of this group.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, a considerable percentage was older than 54, implying that increases in labour demand owing to age-retirement may be significant.

6143

Barbers, Hairdressers and Related Occupations

Examples: Beautician
Cosmetician
Manicurist
Hair Stylist

Employment trends (000s) 1985: 69.7	1992: 86.2	Change: 16.5
Estimated attrition due to labour force withdrawals (000s)		1985-92: 11.8
	Total requirements (000s):	28.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	75%	40%	Under 25 years:	31%	25%
Males:	25%	60%	Over 54 years:	7%	12%

Employment is expected to grow faster than the average rate, based on the outlook in the Personal Hospitality Services sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may not be particularly sensitive to changing economic conditions.

At the 1981 Census, females represented the large majority of this occupational group. In addition, a below-average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may not be large.

6191

Janitors, Charworkers and Cleaners

Examples: Chimney Cleaner
Floor Cleaner
Washroom Attendant
Window Cleaner

Employment trends (000s) 1985: 230.7	1992: 264.1	Change: 33.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 61.4
	Total requirements (000s):	94.8

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	41%	40%	Under 25 years:	24%	25%
Males:	59%	60%	Over 54 years:	23%	12%

Employment is expected to grow at about the average rate, based on the outlook in Education Services, and Miscellaneous Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The ongoing increase in the number of office buildings and apartment buildings translates into employment opportunities for those who clean and care for the structures. The large size of this group may mean numerous job openings, many of which are part-time.

At the 1981 Census, males represented a majority in this occupational group. In addition, a considerable proportion was older than 54, implying that increases in labour demand owing to age-retirement may be significant.

6198

Occupations in Labouring and Other Elemental Work: Other Services

Examples: Auto Washer
Baggage Checker
Dishwasher
Door Tender
Engine Cleaner
Laundry Labourer
Shoe Shiner

Employment trends (000s) 1985: 69.9	1992: 83.6	Change: 13.7
Estimated attrition due to labour force withdrawals (000s)		1985-92: 10.3
	Total requirements (000s):	24.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	45%	40%	Under 25 years:	53%	25%
Males:	55%	60%	Over 54 years:	11%	12%

Employment is expected to grow faster than the average rate, based on the outlook in Personal/Hospitality Services and Trade sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. This is a high-turnover occupation group, so there should be a number of job openings in the future.

At the 1981 Census, males represented a majority in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

7113

Livestock Farmers, plus 7115 Crop Farmers, plus 7119 Farmers, Not Elsewhere Classified

Examples: Apiarist
Fruit Farmer
Tomato Farmer
Poultry Farmer
Maple-Syrup Maker

Employment trends (000s) 1985: 303.9	1992: 299.3	Change:-4.6
Estimated attrition due to labour force withdrawals (000s)		1985-92: 108.5
	Total requirements (000s):	103.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	9%	40%	Under 25 years:	5%	25%
Males:	91%	60%	Over 54 years:	35%	12%

Employment is expected to decline, based on the outlook in the Agriculture sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may not be particularly sensitive to changing economic conditions. Machines are now available to automatically milk dairy cattle and assess the quantity/and quality of milk produced. In addition, automatic potato and seed planters are examples of how technology makes crop farmers more productive, and at the same time reduces their number.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively high proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be large.

The Canadian farm industry will be affected by demographic developments, technological change and rates of return on capital. We could expect the average age of the farm operator to decline, primarily because older and retiring farmers pass farms onto younger workers and/or family members.

The age distribution shows that in 1966 approximately 15 per cent of farm operators were under 35 years old. In 1971, this figure remained constant; however, in 1981 the number increased to 22 per cent. This marked decline in the proportion of farm operators older than 35 years will most likely continue. This occurrence will translate into fewer exits and entrants for demographic reasons. However, the age structure of the sector will remain above-average as will its demographic attrition rate.

For further information, contact:

Agriculture Canada
Farm Income Services Branch
Sir John Carling Building
930 Carling Ave.
Ottawa, Ontario
K1A 0C5
(613) 993-6671

7195

Nursery and Related Workers

Examples: Greenskeeper
Landscape Gardener
Flower Grower

Average salaries, full time employed two years after graduation (1984):
Community college: $14,200 University: N/A

Employment trends (000s) 1985: 62.4 1992: 70.8 Change: 8.4

Estimated attrition due to labour force withdrawals (000s) 1985-92: 10.3

Total requirements (000s): 18.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	16%	40%	Under 25 years:	49%	25%
Males:	84%	60%	Over 54 years:	13%	12%

Employment is expected to grow at about the average rate, based on the outlook in Construction, Public Administration and Agriculture sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Residential and commercial interest in indoor greenery and landscaping will increase the demand for those who grow, care for, and transplant flowers, shrubbery and trees. Most opportunities are part-time and seasonal.

At the 1981 Census, males were predominant in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

For further information, contact:

Agriculture Canada
Sir John Carling Building
930 Carling Ave.
Ottawa, Ontario
K1A 0C5
(613) 995-9554

7311

Captains and Other Officers, Fishing Vessels

Examples: Skipper
Mate
Able Seaman
Master/Captain/Skipper
Deckhand
Boatswain

Employment trends (000s) 1985: 2.4	1992: 2.5	Change:0.1
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.3
	Total requirements (000s):	0.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	8%	25%
Males:	99%	60%	Over 54 years:	13%	12%

Employment is expected to grow less than the average rate, based on the outlook in Fishing and Fish Products sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Opportunities for this occupation group are largely seasonal. Most captains of fishing vessels are relatively small scale operators and may employ as many as seven helpers. Large sea-going trawlers account for fewer than one per cent (1979) of all fishing vessels but a trend toward more factory freezer trawlers used in offshore activity may limit the opportunities for vessel captains. The developments may also change the structure of the industry. Fishing operations may become more integrated as fish processing is carried out offshore.

Fishing activity and therefore employment opportunities are dependent upon a number of other factors: the supply of fish is regulated by the federal government and quotas are imposed; the price of fish may act as an incentive, but the value of the Canadian dollar vis-à-vis European and U.S. currencies has had some influence since 70 percent of sales are derived from exports.

At the 1981 Census, males were predominant in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate. There are low replacement rates for employee turnover and later retirement because of individual ownership of vessels.

7516

Log Inspecting, Grading, Scaling and Related Occupations

Examples: Bark Scaler
Log Culler
Timber Scaler
Treesorter

Employment trends (000s) 1985: 2.3	1992: 2.3	Change:0.0
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.4
	Total requirements (000s):	0.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	9%	40%	Under 25 years:	29%	25%
Males:	91%	60%	Over 54 years:	13%	12%

Employment is expected to show little growth, based on the outlook in Forestry, Wood and Pulp and Paper sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Some occupations in this group are becoming obsolete as scaling is being computerized, eliminating the job of 'scaler's helper'. Reforestation programs in some provinces may create some demand for loggers in some specific geographical areas.

At the 1981 Census, males were highly predominant in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by its higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

7711

Rotary Well-drilling and Related Occupations

Examples: Bailer
Seismograph Driller
Service-Rig Operator
Derrick Worker

Employment trends (000s) 1985: 8.0	1992: 8.8	Change: 0.8
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.2
	Total requirements (000s):	1.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	51%	25%
Males:	99%	60%	Over 54 years:	2%	12%

Employment is expected to grow at the average rate, based on the outlook in Petroleum/Gas Wells/Incidental Mining Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Employment opportunities in this job category depend on the location (increasingly offshore), the extent of new discoveries, and energy prices.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

The geographical distribution of this occupation is also a factor to be taken into consideration. Almost three-quarters (71.7%) of its workforce was located in Alberta at the time of the 1981 Census.

This occupation is currently facing labour market conditions that are not very favorable as indicated by its higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

7713

Rock and Soil Drilling Occupations

Examples: Air Drill Operator
Auger-Operator
Core Driller

Employment trends (000s) 1985: 9.2	1992: 10.3	Change:1.1
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.5
	Total requirements (000s):	1.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	24%	25%
Males:	99%	60%	Over 54 years:	5%	12%

Employment is expected to grow at about an average rate, based on the outlook in Metal Mines, Petroleum/Gas Wells/Incidental Mining Services and Construction sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Canada's mineral industry is undergoing severe restructuring. Changing patterns of metal consumption, weak commodity prices and keen competition are some factors affecting industry performance and hence employment opportunities. Mine modernization will continue to be an ongoing process as mining companies reduce operating costs and achieve productivity gains. High technology processes are being undertaken in both underground and above ground operations. An automatic drill machine can displace three workers. Vertical crater retreat mining and continuous mining systems are other innovations improving productivity and reducing costs. Faster oil and gas growth may offset current slow mining activity and create some employment opportunities.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, a relatively low proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

7715

Blasting Occupations

Examples: Chute Blaster
Dynamiter
Seismograph Shooter
Well Shooter

Employment trends (000s) 1985: 1.9	1992: 2.1	Change:0.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.2
	Total requirements (000s):	0.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	2%	40%	Under 25 years:	26%	25%
Males:	98%	60%	Over 54 years:	11%	12%

Employment prospects in this group will depend on the outlook in Metal Mines, Construction and Petroleum/Gas Wells/Incidental Mining Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Advanced technology in mining or semi-automatic mining has increased the efficiency and safety of coal extraction, but has reduced the number of job openings.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

8137

Moulding, Coremaking and Metal Casting Occupations

Examples: Bench Moulder
Core Setter
Die Caster
Metal Caster
Wheel Moulder
Pattern Moulder

Employment trends (000s) 1985: 7.8	1992: 9.0	Change: 1.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.9
	Total requirements (000s):	2.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	7%	40%	Under 25 years:	25%	25%
Males:	93%	60%	Over 54 years:	12%	12%

Employment is expected to grow at the average rate, based on the outlook in Iron and Steel, Metal Mills and Metal Fabricating sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The advent of plasma technology and automatic machine moulding in metal processing has served to reduce both the hazards and labour content of metal casting. This, combined with the substitution of plastics and other materials for steel, dims the prospects for this occupation.

At the 1981 Census, males were highly predominant in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

The geographical distribution of this occupation is also a factor to be taken into consideration. Over half (57.7%) of its workforce was located in Ontario at the time of the 1981 Census.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

8311

Tool and Die Making Occupations

Examples: Block Setter
Die Cutter
Die Maker
Gauge Maker
Plastic Tool Maker
Tool and Jig Builder

Employment trends (000s) 1985: 11.3	1992: 12.5	Change: 1.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.7
	Total requirements (000s):	2.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	4%	40%	Under 25 years:	19%	25%
Males:	96%	60%	Over 54 years:	18%	12%

Employment is expected to grow at about the average rate, based on the outlook in Metal Fabricating, Auto Parts and Accessories, and Machinery (including computers) sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The use of computer-controlled machine tools will limit the number of job openings despite strong demand for machined metal parts. Knowledge of numerical control may be an increasingly important feature of employment in this occupation.

A Tool and Die maker is a highly skilled tradesperson who must possess a range of skills beyond that of a machinist. He must design, manufacture, fit and assemble dies to produce varying quantities of duplicate parts. There are no specific educational requirements for entry to this occupation. Apprentice programs are available in most provinces for related occupations in metalworking such as sheet metal workers, boilermakers and machinists. These programs are not always compulsory but are recommended. The apprenticeship period is dependent on the individual's training and work experience. The period for qualification as a journeyman in this trade also varies from province to province.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, a relatively high proportion was older than 54, implying that increases in labour demand owing to age-retirement may be large.

The geographical distribution for these occupations are also a factor to be taken into consideration. More than three-quarters (81.8%) of their workforce was located in Ontario at the time of the 1981 Census.

8313

Machinist and Machine Tool Setting-up Occupations

Examples: Aircraft Machinist
Lathe Machinist
Gear Setter
Profiler
Router Operator
Tool Presetter

Employment trends (000s) 1985: 41.4	1992: 45.6	Change: 4.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 4.9
	Total requirements (000s):	9.1

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	3%	40%	Under 25 years:	24%	25%
Males:	97%	60%	Over 54 years:	12%	12%

Employment is expected to grow at the average rate, based on the outlook in Metal Fabricating and Machinery (including computers) sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Despite a strong demand for machined parts in automobiles, appliances and complex industrial machines, the use of computer-controlled machine tools increases the productivity of this group and thus limits job openings. Prospects are better for highly skilled machinists.

Preparation and training for occupations in this group are through an apprenticeship program conducted to provincial standards. Certification is voluntary in most jurisdictions. The apprenticeship period is dependent on the individual's training and work experience. The period for qualification as a journeyman in this trade also varies from province to province.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

8316

Inspecting, Testing, Grading and Sampling Occupations: Metal Machining

Examples: Differential Tester
Gauge Inspector
Tool and Die Inspector
Piston Inspector

Employment trends (000s) 1985: 2.2	1992: 2.4	Change: 0.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.3
	Total requirements (000s):	0.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	16%	40%	Under 25 years:	13%	25%
Males:	84%	60%	Over 54 years:	17%	12%

Employment is expected to grow at less than the average rate, based on the outlook in the Auto Parts and Accessories, Metal Fabricating and Machinery (including computers) sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The growing reliance in manufacturing on computer-aided quality control, where defects are effectively spotted by machines, may limit job opportunities, and produce below-average growth.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively high proportion was older than 54, implying that increases in labour demand owing to age-retirement may be large.

The geographical distribution for these occupations is also a factor to be taken into consideration. More than three-quarters (79.1%) of their workforce was located in Ontario at the time of the 1981 Census.

8319

Metal Machining Occupations, Not Elsewhere Classified

Examples: Bench Hand
Keysmith
Sawsmith

Employment trends (000s) 1985: 6.0	1992: 6.8	Change: 0.8
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.7
	Total requirements (000s):	1.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	9%	40%	Under 25 years:	29%	25%
Males:	91%	60%	Over 54 years:	12%	12%

Employment is expected to grow at an average rate, based on the outlook in the Metal Fabricating, and Metal Mills sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, occupations in this group experienced an increase in their share of the workforce as a result of changes in technology and/or work organization.

At the 1981 Census, males were highly predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

The geographical distribution of these occupations is also a factor to be taken into consideration. More than three-quarters (77.4%) of its workforce was located in Quebec at the time of the 1981 Census.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

8333

Sheet Metal Workers

Examples: Sheet Metal Worker
Tinsmith
Tinker
Metal Worker

Employment trends (000s) 1985: 22.3	1992: 24.5	Change: 2.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 2.2
	Total requirements (000s):	4.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	6%	40%	Under 25 years:	25%	25%
Males:	94%	60%	Over 54 years:	10%	12%

Sheet Metal workers find employment in a variety of industries including construction, metal fabricating, auto/parts, machinery, aircraft, electrical products, metal mills, trade, and others. Employment of sheet metal workers in this group of industries is expected to grow at the average rate. In the construction industry, sheet metal workers are employed in the residential and non-residential building sectors and are involved in new and renovation work. Employment in the trade is sensitive to economic conditions. Technological change has not had a significant impact on employment levels. Training for the trade is provided by apprenticeship. Certification is compulsory in British Columbia, Alberta, Ontario, Quebec, and within an eight-kilometer radius of cities in Saskatchewan.

At the 1981 Census, males were highly predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

These occupation are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

8335

Welding and Flame Cutting Occupations

Examples: Acetylene Cutter
Gas Brazer
Jig Fitter
Welding-Machine Operator
Tank Solderer
Steel Cutter

Employment trends (000s) 1985: 84.8	1992: 94.4	Change: 9.6
Estimated attrition due to labour force withdrawals (000s)		1985-92: 6.8
	Total requirements (000s):	16.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	4%	40%	Under 25 years:	24%	25%
Males:	96%	60%	Over 54 years:	8%	12%

Employment is expected to grow at an average rate, based on the outlook in Metal Fabricating, Miscellaneous Services, Machinery, and Construction sectors, where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. A small yet growing use of robots to carry out both spot and arc welding will limit somewhat the number of job openings in this still large occupation group.

Preparation and training for occupations in this group are through an apprenticeship program conducted to provincial standards. Certification is compulsory in Alberta. The apprenticeship period is dependent on the individual's training and work experience. The period for qualification as a journeyman in this trade also varies from province to province.

There are many kinds of welders, with differing skill requirements depending on the welding technique, type of metal and thickness of material. These range from spot welding requiring very little skill to plasma welding demanding considerable training. These training requirements vary from ferrous to non-ferrous metals. Employers may require welders to be flexible, for instance, having construction-related skills as well as pipe-fitting skills.

Technological advances in welding/burning vary in the different industrial sectors. In the shipbuilding sector, burning operations have been extensively automated. In the construction of pressure pipe lines and boilers, the number of welders has declined relative to output because of the introduction of automated precision welding equipment. The demand for welders will vary from industry to industry, and will depend on specific sector performance.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, a below-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

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8336

Inspecting, Testing, Grading and Sampling Occupations: Metal Shaping and Forming, Except Machining

Examples: Boiler Tester
Chain Inspector
Spring Tester

Employment trends (000s) 1985: 2.0	1992: 2.2	Change: 0.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.3
	Total requirements (000s):	0.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	12%	40%	Under 25 years:	18%	25%
Males:	88%	60%	Over 54 years:	18%	12%

Employment is expected to grow at an average rate, based on the outlook in the Metal Fabricating and Iron and Steel sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, occupations in this group experienced an increase in their share of the workforce as a result of changes in technology and/or work organization. Although a large amount of metal fabrication is being done by machine, inspectors are needed to ensure high quality control.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively high proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be large.

The geographical distribution of this occupation is also a factor to be taken into consideration. Over half (59.0%) of its workforce was located in Ontario at the time of the 1981 Census.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

8337

Boilermakers, Platers and Structural Metal Workers

Examples: Boilermaker
Boiler Erector

Employment trends (000s) 1985: 4.0	1992: 4.4	Change: 0.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.5
	Total requirements (000s):	0.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	2%	40%	Under 25 years:	18%	25%
Males:	98%	60%	Over 54 years:	12%	12%

Boilermakers are employed in the industries of metal fabricating, construction, shipbuilding, rail transport, petroleum and coal products, electric power, iron and steel, and oil and gas. Total employment of boilermakers in all industries should grow at the average rate.

Boilermakers fabricate and repair boiler tanks, heat exchangers, fired heaters, reactors and other pressure vessels. In the construction industry, employment is provided largely by industrial plant construction, including pulp mills, mine mills, generating plants, and oil and gas plants. Since boilermakers also must repair and renovate existing equipment, the trade is less prone to large cyclical swings in employment than would otherwise be the case. However, slack demand for new industrial capacity will result in reductions in occupational employment levels. Recent shifts in the industrial composition away from the industries employing this group would limit job opportunities if these persist. Training is via apprenticeship. Certification is compulsory in Quebec.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

8513

Motor Vehicle Fabricating and Assembling Occupations, Not Elsewhere Classified

Examples: Automotive Builder
Body Fitter
Panel Setter

Employment trends (000s) 1985: 27.6	1992: 29.1	Change: 1.5
Estimated attrition due to labour force withdrawals (000s)		1985-92: 2.4
	Total requirements (000s):	3.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	16%	40%	Under 25 years:	22%	25%
Males:	84%	60%	Over 54 years:	7%	12%

Employment is expected to grow at less than the average rate, based on the outlook in the Motor Vehicles and Trailers, and Auto Parts and Accessories sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The greater use of automatic processes/robots in the automotive industry may limit job opportunities. A possible increase in demand for auto parts may benefit the auto industry and hence the workers employed in it. The recent structural changes taking place in the automotive parts sector will redefine these workers' tasks. Skill integration will be the result of new production techniques as workers become part of a team. The number of occupational classifications will decline as a result of this new work organization.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

The geographical distribution for these occupations is also a factor to be taken into consideration. More than three-quarters (78.6%) of its workforce was located in Ontario at the time of the 1981 Census.

8515

Aircraft Fabricating and Assembling Occupations, Not Elsewhere Classified

Examples: Aircraft Fitter
Aircraft Builder
Controls Assembler
Dimpler
Equipment Assembler
Rigger

Employment trends (000s) 1985: 5.6	1992: 6.4	Change:0.8
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.7
	Total requirements (000s):	1.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	10%	40%	Under 25 years:	31%	25%
Males:	90%	60%	Over 54 years:	11%	12%

Employment is expected to grow at the average rate, based on the outlook in the Aircraft and Parts sector, where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. While the concentration of the aircraft industry in Ontario means most job openings will be there, a new helicopter plant in Quebec may lead to opportunities there.

At the 1981 Census, males were predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

The geographical distribution of these occupations is also a factor to be taken into consideration. Over one half (57.3%) of its workforce was located in Ontario at the time of the 1981 Census.

8533

Electrical and Related Equipment Installing and Repairing Occupations

Examples: Automobile Electrician
Aircraft Electrician
Battery Repairer
Motor Repairer
Marine Equipment Electrician
Stage Electrician
Refrigeration and Air Conditioning Mechanic
Major Appliance Repairer

Average salaries, full-time employed two years after graduation (1984):
Community college: $23,700 University: N/A

Employment trends (000s) 1985: 36.6	1992: 40.4	Change: 3.8
Estimated attrition due to labour force withdrawals (000s)		1985-92: 4.2
	Total requirements (000s):	8.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	2%	40%	Under 25 years:	18%	25%
Males:	98%	60%	Over 54 years:	12%	12%

Employment is expected to grow at the average rate, based on the outlook in Trade and Construction sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Products repaired by this occupation group are becoming more plentiful owing to the desire for greater leisure and comfort. But the use of electronic parts makes these products more efficient and less in need of repair. However, there is a strong tendency to repair costly appliances rather than purchase new ones.

Preparation and training for occupations in this group are through an apprenticeship program conducted to provincial standards. Certification for Refrigeration and Air Conditioning Mechanics is compulsory in some jurisdictions. Pre-employment training is provided in trades and vocational schools. The apprenticeship period is dependent on the individual's training and work experience. The period for qualification as a journeyman in this trade also varies from province to province.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

8535

Electronic and Related Equipment Installing and Repairing Occupations, Not Elsewhere Classified

Examples: Communications Technician
Radar Mechanic
Radio Electrician
Sound Technician
Alarm Systems Installer
Installer and Repairer, Public Address System
Repairer, Television-Studio Equipment

Average salaries, full-time employed two years after graduation (1984):
Community college: $20,700 University: N/A

Employment trends (000s) 1985: 13.8	1992: 15.5	Change: 1.7
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.0
	Total requirements (000s):	2.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	8%	40%	Under 25 years:	23%	25%
Males:	92%	60%	Over 54 years:	6%	12%

Employment is expected to grow at the average rate, based on the outlook in a wide range of sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, occupations in this group experienced an increase in their share of the workforce as a result of changes in technology and/or work organization.

Greater demand for electronic equipment such as multi-switching telephones, radio and television transmitters, sound recording and reproduction equipment, computers and radiation detection apparatus will lead to a concomitant need for those who can repair such equipment in the plant. The spread of computers into many areas, including schools and hospitals, will create job openings for computer technicians. But these will be limited by the computers' improved reliability and ease of repair, as well as the use of computers themselves to diagnose problems in other computers.

Preparation and training for some occupations in this group are through an apprenticeship program conducted to provincial standards. Pre-employment training is provided in trades and vocational schools. A radio-communications equipment repairer would usually follow the apprenticeship program set out for an electronic mechanic. The apprenticeship period is dependent on the individual's training and work experience.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that the increases in labour demand owing to age-retirement may not be large.

8536

Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling, Installing

Examples: Calibration Tester
Circuit Tester
Household Appliance Inspector
Battery Tester
Motors and Controls Tester
Telephone Inspector and Tester

Employment trends (000s) 1985: 9.0	1992: 10.4	Change: 1.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.4
	Total requirements (000s):	2.8

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	38%	40%	Under 25 years:	20%	25%
Males:	62%	60%	Over 54 years:	13%	12%

Employment is expected to grow at an average rate, based on the outlook in the Electrical/Electronic Products sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. A need for stricter quality control in increasingly complex electrical and electronic equipment may provide some job opportunities. At the same time, however, the growing use of lasers to detect defects and the possibility of robotic vision may limit, to a certain extent, future job growth.

At the 1981 Census, males represented a majority in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

The geographical distribution for these occupations is also a factor to be taken into consideration. Six out of 10 of its workforce was located in Ontario at the time of the 1981 Census.

Radio and Television Service Repairers

Examples: Amplifier Repairer
Radio Technician
Sound-Equipment Servicer

Employment trends (000s) 1985: 10.8	1992: 11.8	Change: 1.0
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.5
	Total requirements (000s):	2.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	3%	40%	Under 25 years:	18%	25%
Males:	97%	60%	Over 54 years:	13%	12%

Employment is expected to grow at the average rate, based on the outlook in the Trade sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. The increased durability and falling prices of audio and video equipment have limited somewhat the job openings for repairers in service shops. This decrease is despite the surge in demand for such equipment, both in the home (computer and video game monitors) and as monitors in schools, production plants, and improved building security.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

8541

Cabinet and Wood Furniture Makers

Examples: Cabinet Finisher
Gluer and Nailer
Joiner
Lay-Out Marker

Employment trends (000s) 1985: 25.1	1992: 27.8	Change: 2.7
Estimated attrition due to labour force withdrawals (000s)		1985-92: 2.9
	Total requirements (000s):	5.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	12%	40%	Under 25 years:	32%	25%
Males:	88%	60%	Over 54 years:	11%	12%

Employment is expected to grow at the average rate, based on the outlook in Furniture and Wood sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The increasing utility and decreasing prices of power tools have aided the task of furniture makers. A perceived trend towards fine wood products will open up some job possibilities, but a trend to mass production of furniture will limit job growth.

At the 1981 Census, males were predominant in this occupational group. In addition, an average proportion was older than 54 years, implying that the increases in labour demand owing to age-retirement may be moderate.

8581

Motor Vehicle Mechanics and Repairers

Examples: Motorcycle Repairer
Snowmobile Repairer
Transmission Mechanic
Tune-up Specialist
Truck-Trailer Mechanic
Motor-Vehicle Body Repairer
Automotive Brake and Front-End Mechanic

Average salaries, full-time employed two years after graduation (1984):
Community college: $16,900 University: N/A

Employment trends (000s) 1985: 149.1 1992: 163.7 Change: 14.6

Estimated attrition due to labour force withdrawals (000s) 1985-92: 12.4

Total requirements (000s): 27.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	31%	25%
Males:	99%	60%	Over 54 years:	7%	12%

Employment is expected to grow at the average rate, based on the outlook in Trade sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Prospects are best for those who are familiar with technological developments such as safety and protection devices, electronic gadgetry on the dashboard, computers in the engines as well as computer diagnosis. With the influx of foreign cars, other factors affecting this group are the metrification of auto parts and tools. As the percentage of steel used in car components declines, the increase of plastics (trunks, lids, hoods), new materials (bumpers, fenders, body panels) and ceramics (pistons, bearings, engines) may change the work organization and skills of mechanics and repairers.

Preparation and training for occupations in this group are through an apprenticeship program conducted in accordance with provincial standards. Certification is compulsory in most jurisdictions. Pre-employment training is provided in trades and vocational schools. The apprenticeship period is dependent on the individual's training and work experience. The period for qualification as a journeyman in this trade also varies from province to province.

At the 1981 Census, males were predominant in this occupational group. In addition, a below-average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may not be large.

Aircraft Mechanics and Repairers

Examples: Hangar Mechanic
Helicopter Mechanic
Propeller Mechanic
Carburetor Mechanic

Employment trends (000s) 1985: 9.1	1992: 10.1	Change:1.0
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.9
	Total requirements (000s):	1.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	23%	25%
Males:	99%	60%	Over 54 years:	11%	12%

Employment is expected to grow at the average rate, based on the outlook in Air Transport and Aircraft and Parts sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The number of private and commercial aircraft will grow with population and income, but labour-saving advances have limited the number of job openings for aircraft repairers. A greater emphasis on maintenance to deal with increasing energy costs and stringency of safety regulations may improve this occupational area. The establishment of two new helicopter plants in Quebec and Ontario may increase employment opportunities for helicopter mechanics in those provinces. Also, offshore oil and gas exploration has had an impact on helicopter usage.

Preparation and training for occupations in this group are through an apprenticeship program conducted in accordance with provincial standards. An alternative method of training is completion of relevant courses at a community college with on-the-job training. The apprenticeship period is dependent on the individual's training and work experience. The period for qualification also varies from province to province.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

8583

Rail Transport Equipment Mechanics and Repairers

Examples: Air-Brake Adjuster
Compressor Repairer
Railroad Mechanic
Service Restorer, Emergency
Valve Repairer

Employment trends (000s) 1985: 10.0	1992: 10.0	Change: 0.0
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.2
	Total requirements (000s):	1.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	20%	25%
Males:	99%	60%	Over 54 years:	18%	12%

Employment prospects in this group will depend on the outlook in the Rail Transport sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

At the 1981 Census, males were highly predominant in this occupational group. In addition, a relatively high proportion was older than 54, implying that increases in labour demand owing to age-retirement may be large.

8584

Industrial, Farm and Construction Machinery Mechanics and Repairers

Examples: Caterpillar Repairer
Linotype Repairer
Diesel Mechanic
Engineering-Equipment Mechanic
Dairy Equipment Repairer
Millwright

Average salaries, full-time employed two years after graduation (1984):
Community college: $22,700 University: N/A

Employment trends (000s) 1985: 92.9 1992: 102.1 Change: 9.2

Estimated attrition due to labour force withdrawals (000s) 1985-92: 10.2

Total requirements (000s): 19.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	18%	25%
Males:	99%	60%	Over 54 years:	12%	12%

Employment is expected to grow at the average rate, based on the outlook of a wide range of industries where these occupations occur. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The increasing complexity of farm machinery (transmission and engines) and industrial equipment will lead to greater opportunities for those who do maintenance and repair work. Diesel mechanics, and smaller lawn and garden tractor repairers, and millwrights, should expect some opportunities as the need increases to maintain and care for lawns and gardens.

At the 1981 Census, males were highly predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

Preparation and training for occupations in this group are through an apprenticeship program conducted to provincial standards. Certification is voluntary in most jurisdictions for a number of occupations within this group. The apprenticeship period is dependent on the individual's training and work experience. The period for qualification as a journeyman in this trade also varies from province to province.

8585

Business and Commercial Machine Mechanics and Repairers

Examples: Accounting Machine Servicer
Cash-Register Mechanic
Computer Service Repairer
Photo-Copy Machine Servicer
Calculator Servicer

Employment trends (000s) 1985: 10.1	1992: 11.1	Change: 1.0
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.7
	Total requirements (000s):	1.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	3%	40%	Under 25 years:	24%	25%
Males:	97%	60%	Over 54 years:	6%	12%

Employment prospects in this group will depend on the outlook in the Trade, Business Services and Machinery (including computers) sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Though business machines are becoming increasingly versatile as well as plentiful, the growing use of electronic components has made them more reliable and in need of less repair than previously. Copying machines have, to a certain extent, become self-diagnostic: users are able to make minor repairs themselves.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

8587

Watch and Clock Repairers

Examples: Clock Reconditioner
Meter Repairer
Time-Lock Expert

Employment trends (000s) 1985: 2.3	1992: 2.5	Change: 0.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.7
	Total requirements (000s):	0.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	9%	40%	Under 25 years:	12%	25%
Males:	91%	60%	Over 54 years:	28%	12%

Employment prospects in this group will depend on the outlook in the Trade sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, occupations in this group experienced a decrease in their share of the workforce as a result of changes in technology and/or work organization.

The increasing durability and falling prices of watches have reduced the need to repair them, since if something does go wrong, they may be replaced quite cheaply. And as watches are now made of modular components, the time of repair and therefore the need for repairers is reduced. Alternatively, there is a market for the maintenance of expensive time pieces. The above projections are therefore likely to be overestimates of the employment growth in this group.

At the 1981 Census, males were predominant in this occupational group. In addition, a high percentage was older than 54, implying that the increases in labour demand owing to age-retirement may significant.

8588

Precision Instrument Mechanics and Repairers

Examples: Gyroscopic Instrument Mechanic
Camera Repairer
Gyroscope Repairer
Instrument Technician
Surgical Instrument Repairer
Instrument Repairer

Employment trends (000s) 1985: 4.4	1992: 5.0	Change: 0.6
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.4
	Total requirements (000s):	1.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	4%	40%	Under 25 years:	16%	25%
Males:	96%	60%	Over 54 years:	9%	12%

Employment is expected to grow at the average rate, based on the outlook in various Service and Manufacturing sectors, Trade and Miscellaneous Manufacturers (including plastics) sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technologicai or organizational changes. The growing sophistications of thermostats and telemet ring instruments, and precision instruments used in medicine, laboratories and the aircraft industry, will mean a steady flow of job openings for this group.

Preparation and training for occupations in this group are through an apprenticeship program conducted to provincial standards. The provision is made for certification, but with completion of approved courses a certificate of apprenticeship is issued. The apprenticeship period is dependent on the individual's training and work experience. This period for qualification varies according to the province.

At the 1981 Census, males were highly predominant in this occupational group. In addition, a below-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

8589

Other Mechanics and Repairers, Not Elsewhere Classified

Examples: Auto Greaser
Crane Greaser
Fire Extinguisher Repairer
Gas Servicer
Gunsmith
Locksmith
Vending-Machine Servicer

Employment trends (000s) 1985: 19.7	1992: 22.0	Change: 2.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 2.5
	Total requirements (000s):	4.8

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	2%	40%	Under 25 years:	28%	25%
Males:	98%	60%	Over 54 years:	13%	12%

Employment is expected to grow at the average rate, based on the outlook in Trade and Miscellaneous Services sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. This occupational group, encompassing small engine repairers, can be subject to various market fluctuations; for instance, the introduction of gas has had a downward influence on oil burner servicers, but the demand for gas servicers has increased.

Preparation and training for occupations in this group are through an apprenticeship program conducted to provincial standards. No provision is made for certification, but with completion of approved courses a certificate of apprenticeship is issued. The apprenticeship period is dependent on the individual's training and work experience. This period for qualification varies from province to province.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

8591

Jewellery and Silverware Fabricating, Assembling and Repairing Occupations:

Examples: Plater
Stonesetter
Gemologist
Goldsmith
Jeweller

Employment trends (000s) 1985: 5.3	1992: 6.2	Change: 0.9
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.8
	Total requirements (000s):	1.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	34%	40%	Under 25 years:	21%	25%
Males:	66%	60%	Over 54 years :	11%	12%

Employment is expected to grow at an average rate, based on the outlook in the Miscellaneous Manufacturers (including plastics) and Trade sectors, where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may not be particularly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Rising incomes leading to higher sales of new and old jewellery will open some job opportunities for repairers.

Preparation and training for occupations in this group are through an apprenticeship program conducted to provincial standards. No provision is made for certification in this occupation, but with completion of approved courses a certificate of apprenticeship is issued. The apprenticeship period is dependent on the individual's training and work experience. This period for qualification varies from province to province.

Those colleges currently offering courses for this occupation group include: Sheridan College, Oakville; George Brown College, Toronto; Southern Alberta College of Art, Calgary; Nova Scotia College of Art, Halifax.

At the 1981 Census, males represented a majority in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

The geographical distribution of this occupation is also a factor to be taken into consideration. Half (50.0%) of its workforce was located in Ontario at the time of the 1981 Census.

8592

Marine Craft Fabricating, Assembling and Repairing Occupations

Examples: Shipwright
Marine Machinist
Loft Rigger
Outboard-Motor Mechanic

Employment trends (000s) 1985: 7.7	1992: 8.9	Change: 1.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.1
	Total requirements (000s):	2.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	3%	40%	Under 25 years:	24%	25%
Males:	97%	60%	Over 54 years:	14%	12%

Employment is expected to grow at an average rate, based on the outlook in the Shipbuilding and Repair and Miscellaneous Transport/Equipment sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. The demand for this occupational group may improve somewhat with increased activity in offshore oil and gas exploration in the Atlantic Provinces, and as more ship repair and maintenance is undertaken as opposed to building new vessels.

Preparation and training for occupations in this group are through an apprenticeship program conducted to provincial standards. No provision is made for certification, but with completion of approved courses a certificate of apprenticeship is issued. The apprenticeship period is dependent on the individual's training and work experience. This period for qualification varies according to the jurisdiction.

At the 1981 Census, males were highly predominant in this occupational group. In addition, an above-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

8711

Excavating, Grading and Related Occupations

Examples: Cat Operator
Heavy Equipment Operator
Grader Operator
Back-Hoe Operator
Pipe Layer

Employment trends (000s) 1985: 43.6	1992: 47.8	Change: 4.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 4.5
	Total requirements (000s):	8.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	17%	25%
Males:	99%	60%	Over 54 years:	10%	12%

Operating engineers are employed in nearly all sectors of construction to prepare the construction site, using heavy equipment to move earth. Employment in construction is expected, on a national basis, to grow at the average rate. In addition to direct construction work, these occupations are employed in road maintenance, agriculture and other roles. Operating engineers who are employed in the construction industry are subject to cyclical swings in employment levels.

Technological advances in the form of improvements in the machinery operated by this group have tended to increase productivity. Offsetting this effect on employment is the trend toward more-ambitious construction projects requiring more-intensive site preparation. Since the work of operating engineers is exposed to the elements, employment is seasonal. Training is given by employer on-the-job programs or apprenticeship. Certification is compulsory in Quebec.

At the 1981 Census, males were almost exclusive to this occupational group. In addition, a relatively small proportion was older than 54 years, implying that the increases in labour demand owing to age-retirement may be moderate.

This occupation is currently facing labour market conditions that are not very favorable, as indicated by its higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

8731

Electrical Power Line Workers and Related Occupations

Examples: Lineman
Power Lineman

Employment trends (000s) 1985: 10.6	1992: 12.1	Change: 1.5
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.8
	Total requirements (000s):	2.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	17%	25%
Males:	99%	60%	Over 54 years:	7%	12%

Linemen are employed in construction and by utilities for maintenance and repair work. Employment is expected to grow at the average rate. The trade is subject to major changes in regional employment patterns as utilities construct new transmission lines. For this reason, construction linemen must be highly itinerant, moving from region to region.

Technological changes have occurred affecting the trade, but these changes have not significantly affected employment. More significant is the ability of employers to substitute less-skilled labour for linemen, a factor that is of regional importance. Linemen must work at considerable heights without undue discomfort and must have superior agility and balance. There is a seasonal aspect to the employment of linemen owing to climatic constraints. Training is via apprenticeship.

At the 1981 Census, males were almost exclusive to this occupational group. In addition, a relatively low proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

8733

Construction Electricians and Repairers

Examples: Construction Electrician
Wireman
Wiring Electrician

Employment trends (000s) 1985: 45.5	1992: 49.2	Change: 3.7
Estimated attrition due to labour force withdrawals (000s)		1985-92: 3.5
	Total requirements (000s):	7.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	29%	25%
Males:	99%	60%	Over 54 years:	8%	12%

Construction electricians are employed in all sectors of the construction industry on new and repair work. In this capacity, employment of electricians is expected to grow at less than the average rate, on a national basis. In addition, other industries employ electricians in a maintenance capacity and for non-contract construction work. Construction electricians encounter cyclical variations in employment as a result of the investment cycle.

The employment effects of recent technological change have not been significant. However, new skills, especially in electronics and instrumentation, are increasingly required. In some regions, employment opportunities will occur owing to turnover and the fact that the group's labour force is relatively large. Apprenticeship provides the training for the trade. Compulsory certification is in effect in PEI, New Brunswick, Quebec, Nova Scotia, Ontario, Saskatchewan and in parts of Newfoundland.

At the 1981 Census, males were almost exclusive to this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

Wire Communications and Related Equipment Installing and Repairing Occupations

Examples: Branch Exchange Repairer
Telephone Facilities Evaluator
Line Installer
Telephone Technician
Protective Signal Installer

Average salaries, full-time employed two years after graduation (1984): Community College: $24,000 University: N/A

Employment trends (000s) 1985: 33.1	1992: 35.6	Change: 2.5
Estimated attrition due to labour force withdrawals (000s)		1985-92: 2.0
	Total requirements (000s):	4.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	6%	40%	Under 25 years:	26%	25%
Males:	94%	60%	Over 54 years:	5%	12%

Employment is expected to grow at less than the average rate, based on the outlook in the Telephone and Telegraph sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The impact of technology in telecommunications occupations has been widespread both in 'outside craft' (those installing lines and telephones) and 'inside craft' (those installing and fixing switches). There is now widespread introduction of the computer as a switching device to replace the old electromechanical switching systems. Switches route phone traffic through the network. The earlier electromechanical switches needed considerable routine maintenance. The skills required by these repairmen were electrical, mechancial and analytical for diagnosis. Now electronic switches use electronic circuitry and computer technology to do traffic routing. The need for diagnosis and trouble shooting is engineered into the equipment, and the need for maintenance has been considerably reduced.

Some job openings will be created by demand for telephone, switchboard, data transmission, burglar alarms, fire detectors, and cable television services. However, opportunities may be limited somewhat by such technological advances as satellites, microwave systems, fibre optics and pre-wired buildings.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

8736

Inspecting, Testing, Grading and Sampling Occupations:
Electrical Power, Lighting and Wire Communications Equipment
Erecting, Installing and Repairing

Examples: Line Inspector
Telecom
Powerline Patroller
Load Checker
Test-table Operator
Switch Inspector

Employment trends (000s) 1985: 4.7	1992: 5.3	Change: 0.6
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.6
	Total requirements (000s):	1.2

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	15%	40%	Under 25 years:	16%	25%
Males:	85%	60%	Over 54 years:	12%	12%

Employment is expected to grow at the average rate, based on the outlook in the Telephone and Telegraph, Electrical Power and Electrical/Electronic Products sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The widespread introduction of the computer as a switching device to replace the old electromechanical switching systems has meant that diagnosis is engineered into the equipment. Within the telephone and telegraph sector, this new technology has led to fewer inspectors being needed because of ongoing centralized switching control centres.

At the 1981 Census, males were predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

8781

Carpenters and Related Occupations

Examples: Carpenter
Joiner
Framer
Form Builder
Maintenance Carpenter

Employment trends (000s) 1985: 107.2	1992: 112.5	Change: 5.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 15.0
	Total requirements (000s):	20.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	21%	25%
Males:	99%	60%	Over 54 years:	15%	12%

Employment in these occupations are concentrated in the construction industry, although some carpenters are employed in other industries for maintenance and non-contract construction. On a national basis, occupational employment is expected to grow faster than the average rate. However, there may be some regional variation in this respect. Employment levels experience some variation owing to the cyclical nature of construction activity brought about by changing business conditions. Carpenters find employment in both the residential and non-residential sectors of the construction industry; however, self-employment on a contract basis is not uncommon.

Technological change in the form of new methods of construction and new building materials is expected to influence employment over the forecast period through increased productivity. Job openings in most regions are expected to result from high levels of turnover owing in part to the transitory nature of construction employment. Carpentry work is done both inside and outside, and so is influenced by climatic conditions, but seasonal effects will vary from region to region. Entry to the trade has traditionally been through apprenticeship, with persons who have completed a full apprenticeship generally having better employment opportunities. Certification is compulsory in Saskatchewan and Quebec.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively high proportion was older than 54, implying that increases in labour demand owing to age-retirement may be large.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

8782

Brick and Stone Masons and Tilesetters

Examples: Bricklayer
Stone Mason
Tilesetter
Furnace Mason

Employment trends (000s) 1985: 18.3	1992: 19.1	Change: 0.8
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.8
	Total requirements (000s):	2.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	18%	25%
Males:	99%	60%	Over 54 years:	11%	12%

Employment of bricklayers and masons is concentrated in the construction industry and undergoes variation owing to the influence of the business cycle on investment in construction. Employment in these trades is expected to grow less than the average rate, on a national basis. The masonry occupations are employed in residential, non-residential and engineering construction; many masons are self-employed on a contract basis.

Employment in this occupational group has not been significantly influenced by technological change. However, the increasing popularity of brick and other masonry construction will tend to increase employment of those working with these materials. Opportunities for stone masons will be more limited owing to the cost of stone as a building material. The outlook for tilesetters is good since the use of tile has spread from the kitchen and bathroom to other rooms in the home as well as to restaurants and offices. Much of the work of bricklayers and masons is done outside, resulting in a pronounced seasonality in employment levels. The primary method of training is apprenticeship. Certification of masons is compulsory in Newfoundland, Nova Scotia, Quebec and New Brunswick (bricklaying only).

At the 1981 Census, males were extremely predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

Concrete Finishing and Related Occupations

Examples: Cement Mason
Cement Finisher
Terrazzo Worker

Employment trends (000s) 1985: 5.4	1992: 5.8	Change: 0.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.5
	Total requirements (000s):	0.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	21%	25%
Males:	99%	60%	Over 54 years:	13%	12%

Cement masons are employed primarily in the construction industry where, on a national basis, occupational employment is expected to grow at less than the average rate. The level of employment is subject to cyclical variation owing to changing business conditions. Cement masons and those practicing related occupations are concentrated in non-residential and some engineering sectors of the industry.

The trend toward greater use of concrete construction will tend to increase employment. In terms of employment, technological change has not had significant effects. Because much of the work of cement masons is outdoors and exposed to the elements, there is considerable seasonality in employment levels. Apprenticeship is the accepted means of training for this occupation. Certification is compulsory in Quebec.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

8784

Plasterers and Related Occupations

Examples: Plasterer
Drywall Installer
Lather
Stucco Plasterer

Employment trends (000s) 1985: 13.9	1992: 14.0	Change: 0.1
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.9
	Total requirements (000s):	1.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	24%	25%
Males:	99%	60%	Over 54 years:	6%	12%

Employment of this occupational group is concentrated in building construction and is prone to cyclical variation owing to changing business and investment conditions. On a national basis, employment of this trade is expected to show little growth. Unemployment can be wisepread during times of slack demand for construction. Changing building technology has contributed to a marked decline in the demand for plastering skills as drywall construction has replaced more traditional building techniques. Home renovation will provide some employment opportunities. Since much plastering and drywall work is performed indoors, seasonal variation in employment is not as pronounced as in some other construction trades. Apprenticeship provides the most common means of training for these occupations. Certification is compulsory in Quebec.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

These occupations are currently facing labour market conditions that are not very favorable as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

Painters, Paperhangers and Related Occupations

Examples: Painter
Paperhanger
Decorator

Employment trends (000s) 1985: 32.4	1992: 33.7	Change: 1.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 4.0
	Total requirements (000s):	5.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	6%	40%	Under 25 years:	26%	25%
Males:	94%	60%	Over 54 years:	12%	12%

Employment of painters and decorators is provided by new construction activity and by the renovation and maintenance of existing structures.

Employment is expected to grow at less than the average rate. The dual role of the painting and decorating trade results in less cyclical variation in employment than is the case for many of the construction occupations. In times of slow business activity, however, periods of unemployment may be common for painters.

Technological change, such as the advent of power spray painting, has changed the skills required of painters, although new techniques have not resulted in a significant change in the occupational share of the construction workforce over the last decade. The traditional means of entry to this occupation have been apprenticeship. Certification is compulsory in Quebec and Saskatchewan.

At the 1981 Census, males were predominant in this occupational group. In addition, an average proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be moderate.

These occupations are currently facing labour market conditions that are not very favorable as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

8786

Insulating Occupations, Construction

Examples: Heat and Frost Insulator
Insulation Installer
Asbestos Worker

Employment trends (000s) 1985: 5.8	1992: 6.2	Change: 0.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.4
	Total requirements (000s):	0.8

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	3%	40%	Under 25 years:	35%	25%
Males:	97%	60%	Over 54 years:	7%	12%

Employment of the insulating occupations is distributed among several industries, with the construction industry accounting for approximately 75 per cent of the total. Employment is expected to grow at less than the average rate, on a national basis. Heat and frost insulators in the construction industry are subject to cyclical periods of unemployment owing to peaks and troughs in construction investment. Construction insulators are employed primarily in non-residential building construction. Insulators work with hazardous materials and must take appropriate precautions.

Technological change has not caused a shift in the proportional occupational share of construction industry employment over the past decade. Higher standards of insulating and energy efficiency in new construction have created employment opportunities. The discontinuation of the CHIP program in 1985 may have negative implications for employment of insulators in the next several years. Training for the occupation is via apprenticeship. Certification is compulsory in Quebec.

At the 1981 Census, males were highly predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

8787

Roofing, Waterproofing and Related Occupations

Examples: Roofer
Waterproofer
Shingler

Employment trends (000s) 1985: 9.1	1992: 9.5	Change: 0.4
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.6
	Total requirements (000s):	1.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	2%	40%	Under 25 years:	35%	25%
Males:	98%	60%	Over 54 years:	6%	12%

Roofers are employed primarily in the construction industry; the total volume of work is divided between new construction, and repairs and renovation. The latter activity, re-roofing, contributes to making employment in this occupation somewhat less sensitive to cyclical swings in investment in construction. Employment of roofers is expected to grow at less than the the average rate. Roofers must work with hazardous materials under uncomfortable conditions, often for long periods of time. The work is highly seasonal, being affected by weather conditions. Training is available through apprenticeship. Certification is compulsory in British Columbia and Quebec.

Technological change has not caused the occupational share of construction industry employment to change significantly over the last decade, although new materials and methods have been adopted.

At the 1981 Census, males were highly predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that the increases in labour demand owing to age-retirement may not be large.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

8791

Pipefitting, Plumbing and Related Occupations

Examples: Plumber
Pipefitter
Steamfitter
Sprinklerfitter
Gasfitter

Employment trends (000s) 1985: 43.4	1992: 46.7	Change: 3.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 4.5
	Total requirements (000s):	7.8

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	19%	25%
Males:	99%	60%	Over 54 years :	11%	12%

The construction industry accounts for roughly half of the employment of the piping trades. Employment of occupational group, on a national basis, is expected to grow at less than the average rate for all occupations. New construction, and repair and maintenance work is routine for these occupations in all major sectors of construction — residential, non-residential building and engineering. Employment in the piping trades is subject to cyclical fluctuations, but this is cushioned, to a degree, by work needed on existing piping. The work performed by the plumbing occupations can be physically difficult and is often done in cramped, uncomfortable conditions. There is a seasonal fluctuation in the availability of work in the piping trades. Apprenticeship is the normal source of training for this occupational group. Certification is complusory for one or more of the piping trades in Newfoundland, PEI, Nova Scotia, New Brunswick, Quebec, Ontario, Alberta and British Columbia.

Technological change has had an impact on the kinds of methods and materials used, although over the last 10 years, this has not led to a significant change in the proportional occupational share of the construction workforce.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

8793

Structural Metal Erectors

Examples: Ironworker-Structural
Ironworker-Reinforcing
Steel Constructor

Employment trends (000s) 1985: 7.8	1992: 8.6	Change: 0.8
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.5
	Total requirements (000s):	1.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	24%	25%
Males:	99%	60%	Over 54 years:	7%	12%

Structural metal erectors are employed principally in the construction industry but are also required in metal fabricating, oil and gas production, iron and steel production, electric utilities and rail transport. Taken together, total employment of this occupation in these industries is expected to grow at an average rate. Construction ironworkers, employed in the construction industry, account for slightly less than one-half of the employed stock of structural metal erectors. Ironworkers are employed in the non-residential building and engineering sectors of the construction industry. Employment is subject to cyclical fluctuations. Construction ironworkers fulfill two main functions: they erect steel structures as structural ironworkers and they assemble steel reinforcing rods for reinforced concrete as reinforcing ironworkers. Both kinds of work require physical strength and agility. Structural ironwork entails work at considerable heights and therefore is dangerous, requiring safety precautions.

Technological change has not had a significant employment impact in recent years. Ironwork employment is highly seasonal and structural ironworkers, in particular, must be mobile, travelling from project to project within and between regions. Training for ironwork is provided by apprenticeship.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

8795

Glaziers

Examples: Glazier
Glass Installer
Windshield Repairer

Employment trends (000s) 1985: 5.1	1992: 5.4	Change: 0.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.3
	Total requirements (000s):	0.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	4%	40%	Under 25 years:	34%	25%
Males:	96%	60%	Over 54 years:	5%	12%

Glaziers are employed to install new glass in both new and existing buildings. Vehicle glass repair also represents a portion of the employment of this occupational group. Employment of glaziers, on a national basis, is expected to grow at less than the average rate. The significant volume of glass replacement work renders the occupation less prone to sharp cyclical swings in employment, although times of low construction demand bring about unemployment.

New methods of installing glass in buildings have affected the employment of glaziers in the recent past and may continue to be a factor in the occupational employment picture. Employment opportunities will result from the retrofitting of double and triple glazed windows as a measure to increase the energy efficiency of buildings. The normal source of training in this trade is apprenticeship. Certification is compulsory in Quebec.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively small proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

These occupations are currently facing labour market conditions that are not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies.

9111

Air Pilots, Navigators and Flight Engineers

Examples: Aircraft Captain
Commercial Pilot
Helicopter Pilot
Mapping Pilot

Employment trends (000s) 1985: 6.7	1992: 7.2	Change: 0.5
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.4
	Total requirements (000s):	0.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	3%	40%	Under 25 years:	14%	25%
Males:	97%	60%	Over 54 years:	5%	12%

Employment is expected to grow at less than the average rate, based on the outlook in the Air Transport sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be particularly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Ongoing deregulation in the airline industry may have several short-term effects on this group as adjustments are made to adapt to a more competitive environment. As airlines offer new routes, some openings may occur with smaller regional carriers as larger airlines continue to increase load factors and reduce operating costs.

At the 1981 Census, males were highly predominant in this occupational group.

9131

Locomotive Operating Occupations

Examples: Locomotive Engineer
Engineer Assistant
Locomotive Inspector
Road Freight Engineer
Outside Hostler
Switch Engineer

Employment trends (000s) 1985: 7.4	1992: 7.4	Change: 0.0
Estimated attrition due to labour force withdrawals (000s)		1985-92: 1.3
	Total requirements (000s):	1.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	2%	40%	Under 25 years:	8%	25%
Males:	98%	60%	Over 54 years:	25%	12%

Employment prospects in this group will depend on the outlook in the Rail Transport sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Some increased rail traffic may be expected from the Crow rate changes and possible double-tracking. However, with ongoing deregulation, sector railway companies are becoming more competitive with other forms of transportation, particularly trucking, by developing and marketing intermodal services. Computerized operating systems — such as advanced train control in modular units, microprocessors and digital technology for train inspection, locomotive performance monitoring and on-board diagnostics — will result in higher productivity but fewer employment opportunities.

At the 1981 Census, males were highly predominant in this occupational group. In addition, a considerable proportion was older than 54, implying that increases in labour demand owing to age-retirement may be significant, or attrition could be the way of increasing employment.

Deck Officers

Examples: Captain-Passenger Ferry, Coast Guard, Dredges, Tugs, Cargo Vessels, Off Shore Supply Vessels
Engineers-Passenger Ferry, Coast Guard, Dredges, Tugs, Cargo
Marine Pilots-Cargo Vessels, Passenger Vessels

Employment trends (000s) 1985: 4.8	1992: 5.1	Change: 0.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.7
	Total requirements (000s):	1.0

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	8%	25%
Males:	99%	60%	Over 54 years:	25%	12%

Employment is expected to grow at less than the average rate, based on the outlook in Water Transport and Related Services and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Job openings in this category are geographically limited to the Great Lakes and Canadian coastal areas. The demand for water transport will be fairly flat. However, as explorations continue in offshore oil and gas developments, the demand for deck officers could be expected to increase. If each new rig requires three supply vessels to service it, then the demand for deck officers will be affected by the number of oil rigs and the number of supply vessels required to service and provide safety and emergency operations. Within the offshore marine industry, however, turnover rates are low as qualified deck officers are reluctant to change their careers.

At the 1981 Census, males were predominant in this occupational group.

For further information, contact:

Canadian Merchant Service Guild
1150 Morrison Drive
Ottawa, Ontario
K2H 8S9
(613) 829-9531

9153

Engineering Officers, Ship

Examples: Chief Marine Engineer
Diesel Engineer Officer
Tugboat Engineer

Employment trends (000s) 1985: 2.5	1992: 2.7	Change: 0.2
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.4
	Total requirements (000s):	0.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	7%	25%
Males:	99%	60%	Over 54 years:	21%	12%

Employment is expected to grow at less than the average rate, based on the outlook in Water Transport and Related Services and Public Administration sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be highly sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Job openings are regional, confined mainly to the coasts and Great Lakes of Canada. Marine human resource requirements may be related to offshore oil and gas activity in the Venture natural gas development off Nova Scotia and the Hibernia field off St. John's, Newfoundland. Supply vessels will be used to service and provide safety and emergency operations to each new rig. The estimate of approximately three supply vessels for each rig may contribute to demand for this occupation.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, a relatively high proportion was older than 54, implying that increases in labour demand owing to age-retirement may be large.

9171

Bus Drivers

Examples: School Bus Driver
Bus Operator

Employment trends (000s) 1985: 49.2	1992: 61.3	Change: 12.1
Estimated attrition due to labour force withdrawals (000s)		1985-92: 9.3
	Total requirements (000s):	21.4

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	25%	40%	Under 25 years:	6%	25%
Males:	75%	60%	Over 54 years:	16%	12%

Employment is expected to grow faster than the average rate, based on the outlook in the Miscellaneous Transport/Storage sector where these occupations are concentrated. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Increased ridership on growing intra-city transit will open up some jobs, but the use of larger buses may limit opportunities somewhat. The demand for long-distance, inter-city bus transport is fairly insensitive to swings in the economy, resulting in steady demand for bus drivers of this type. Given expected gains in elementary school enrolment, the prospects for school bus drivers, often a part-time occupation, seem good.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively large proportion was older than 54, implying that the increases in labour demand owing to age-retirement may be large.

9175

Truck Drivers

Examples: Armoured-Car Driver
Auto-Carrier Driver
Oil Truck Driver
Garbage-Truck Driver
Moving-Van Driver

Employment trends (000s) 1985: 247.4	1992: 293.4	Change: 46.0
Estimated attrition due to labour force withdrawals (000s)		1985-92: 23.3
	Total requirements (000s):	69.3

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	3%	40%	Under 25 years:	23%	25%
Males:	97%	60%	Over 54 years:	8%	12%

Employment prospects in this group will depend on the outlook in Miscellaneous Transport/Storage and Trade sectors where the occupation is concentrated. Reflecting the employment patterns of this sector, the occupation may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

Larger trucks will limit job opportunities in this category to less than would have been expected from the increased demand for interprovincial trucking. A factor that may limit this occupation's growth is aggresive competition from the railway as successful piggyback services continue between Montreal and Toronto. The growth of regional truckers (Ontario) has also been limited owing to increased intermodal competition and deregulation in the United States.

At the 1981 Census, males were highly predominant in this occupational group. In addition, a below-average proportion was older than 54, implying that increases in labour demand due to age-retirement may not be large.

This occupation is currently facing labour market conditions that are not very favorable, as indicated by its higher-than-average U.I. claim rate and by the absence of any hard-to-fill vacancies.

For further information, contact:

Canadian Trucking Association
130 Albert Street
Suite 300
Ottawa, Ontario
K1P 5G4
(613) 236-9426

9512

Printing Press Occupations

Examples: Lithographic Press Operator
Flexographic Press Operator
Rotogravure Press Operator
Letterpress Operator

Employment trends (000s) 1985: 24.5	1992: 27.0	Change: 2.5
Estimated attrition due to labour force withdrawals (000s)		1985-92: 2.1
	Total requirements (000s):	4.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	11%	40%	Under 25 years:	27%	25%
Males:	89%	60%	Over 54 years:	9%	12%

Employment prospects in this group will depend on the outlook in Printing and Publishing sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may not be particularly sensitive to changing economic conditions. A rapidly growing demand for printed material may create some job openings, but the use of high-speed equipment containing microprocessors have limited job growth.

Based on an industry report, employment trends will differ within printing press occupations. Moderate growth is expected for lithographic press operators as offset lithography is now the main process used in the commercial printing industry.

The growth of flexographic printing used in the production of flexible packaging and for imprinting is expected to be moderate. But as this process continues to be refined it could become more competitive with lithography. Employment growth in lithography may be limited.

Copper-plate or rotogravure is used for long-run printing such as catalogues, newspaper inserts and high-quality folding cartons. Some growth is expected in the folding carton market. Those printing processes in the traditional long-run markets that have incorporated certain aspects of lithography such as press size, speed and plate life are not expected to grow very much in the future. The use of letterpress printing has declined and it is not expected to be a factor in the commercial printing industry.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively low proportion was older than 54, implying that the increases in labour demand owing to age-retirement may not be large.

For further information, contact:

Council of Printing Industries of Canada
620 University Avenue
11th Floor
Toronto, Ontario
M5G 2C1
(416) 591-1509

Graphic Arts Industries Association
75 Albert Street
Suite 906, Fuller Bldg.
Ottawa, Ontario
K1P 5E7
(613) 236-7208

9515

Photoengraving and Related Occupations

Examples: Camera Operator
Dot-Etcher
Stripper
Plate Maker
Textile Engraver
Rotogravure Cylinder Technician
Scanner Operator
Electronic Pre-Press Technician

Employment trends (000s) 1985: 2.8	1992: 3.1	Change: 0.3
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.3
	Total requirements (000s):	0.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	18%	40%	Under 25 years:	23%	25%
Males:	82%	60%	Over 54 years:	8%	12%

Employment is expected to grow at the average rate, based on the outlook in Printing and Publishing sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be particularly sensitive to changing economic conditions. The continuing shift to offset printing from letterpress will limit chances for employment of photoengravers who are employed only by the letterpress process. The application of laser technology, however, in plate production may offer opportunities to photoengravers.

Electronic pre-press technicians are those who operate computer-controlled devices capable of performing complicated 4-colour stripping and retouching operations. Based on an industry report, moderate growth is expected in the pre-press area. Because of differences in film preparation techniques used in the making of printing surface, additional skills are required. Therefore, personnel are now being retrained to be able to prepare film for all processes.

At the 1981 Census, males were predominant in this occupational group. In addition, a below-average proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

For further information, contact:

Council of Printing Industries of Canada
620 University Avenue
11th Floor
Toronto, Ontario
M5G 2C1
(416) 591-1509

Graphic Arts Industries Association
75 Albert Street
Suite 906, Fuller Bldg.
Ottawa, Ontario
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(613) 236-7208

9531

Power Station Operators

Examples: Diesel Plant Operator
Generating Station Operator
Hydro Operator
Nuclear-Reactor Operator

Employment trends (000s) 1985: 6.5	1992: 7.5	Change:1.0
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.7
	Total requirements (000s):	1.7

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	5%	40%	Under 25 years:	17%	25%
Males:	95%	60%	Over 54 years:	11%	12%

Employment prospects in this group will depend on the outlook in the Electric Power sector where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes.

The wider use of telemetering instruments, automation and centralized equipment will limit job opportunities. Also, as the electrical generating capacity has outstripped demand and the number of power stations stabilize, the occupational growth projections listed here may be overestimates.

At the 1981 Census, males were highly predominant in this occupational group. In addition, an average proportion was older than 54, implying that increases in labour demand owing to age-retirement may be moderate.

9539

Stationary Engine and Utilities Equipment Operating and Related Occupations, Not Elsewhere Classified

Examples: Cooling System Operator
Dam Attendant
Incinerator Operator
Inspector, Sewage Disposal
Purification Plant-Operator

Employment trends (000s) 1985: 33.8	1992: 37.8	Change: 4.0
Estimated attrition due to labour force withdrawals (000s)		1985-92: 5.5
	Total requirements (000s):	9.5

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	1%	40%	Under 25 years:	15%	25%
Males:	99%	60%	Over 54 years:	19%	12%

Employment prospects in this group will depend on the outlook in a wide range of sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be moderately sensitive to changing economic conditions. In the 1970s, the share of the workforce held by this group was not significantly affected by technological or organizational changes. Occupations in this category include operators of stationary engines, water and sanitation utilities equipment and pumping and pipeline equipment. The fact that such equipment is being increasingly operated from a centralized console may limit job opportunities in this group, and therefore occupational growth projections listed here may be overestimates.

At the 1981 Census, males were extremely predominant in this occupational group. In addition, a relatively high proportion was older than 54, implying that increases in labour demand owing to age-retirement may be large.

Radio and Television Broadcasting Equipment Operators

Examples: Broadcast Engineer
Studio Control Operator
Telecasting Engineer
Transmitter Engineer
Video Operator
Video Control Engineer

Employment trends (000s) 1985: 4.2	1992: 4.8	Change: 0.6
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.3
	Total requirements (000s):	0.9

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	17%	40%	Under 25 years:	33%	25%
Males:	83%	60%	Over 54 years:	3%	12%

Employment is expected to grow at the average rate, based on the outlook in Radio and Television Broadcasting sectors where these occupations are concentrated. Reflecting the employment patterns of this sector, these occupations may be moderately sensitive to changing economic conditions. A proliferation of cable and radio stations and the large-scale use of videos because of their relatively low cost should create some job opportunities. However, the growth of computer-controlled equipment and remote-controlled transmitters may limit the number of job openings.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively low proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

9555

Sound and Video Recording and Reproduction Equipment Operators

Examples: Disk Recordist
Recording Engineer
Sound Editor
Station Engineer
Studio Technician

Employment trends (000s) 1985: 2.4	1992: 2.9	Change: 0.5
Estimated attrition due to labour force withdrawals (000s)		1985-92: 0.1
	Total requirements (000s):	0.6

Sex composition (1981)		All occ.	Age composition (1981)		All occ.
Females:	13%	40%	Under 25 years:	24%	25%
Males:	87%	60%	Over 54 years:	4%	12%

Employment is expected to grow at faster than the average rate, based on the outlook in Radio and Television Broadcasting, Recreation Services and Education Services sectors where these occupations are concentrated. Reflecting the employment patterns of these sectors, these occupations may be highly sensitive to changing economic conditions. In the 1970s, occupations in this group experienced an increase in their share of the workforce as a result of changes in technology and/or work organization. The growing number of cablevision stations doing their own production, radio stations extending their hours, and recording studios being established provide some job opportunities for this occupational group.

At the 1981 Census, males were predominant in this occupational group. In addition, a relatively low proportion was older than 54, implying that increases in labour demand owing to age-retirement may not be large.

The geographical distribution of these occupations is also a factor to be taken into consideration. Over half (51.9%) of their workforce was located in Quebec at the time of the 1981 Census.